The LADIES' *Diary:*
OR
WOMAN'S ALMANACK,

For the Year of our LORD 1799;

Being the Third after BISSEXTILE, or LEAP-YEAR.

Containing New Improvements in ARTS and SCIENCES,
And many Entertaining PARTICULARS:
Designed for the *Use* and *Diversion* of the

FAIR-SEX.

The Ninety-sixth ALMANACK Published of this Kind.

VIRTUE and SENSE, with FEMALE-SOFTNESS join'd,
(ALL that subdues and captivates Mankind!)
In BRITAIN's Matchless FAIR resplendent shine;
THEY rule LOVE's Empire by a Right Divine:
Justly their Charms the astonish'd World admires,
Whom *Royal* CHARLOTTE's bright Example fires.

Y. of Christ.		Ys. since.	Y. of Christ.		Ys. since.
1600	King Charles I. born	199	1714	Q. Ann died, K. Geo.I. succ.	85
1603	Q. Eliz. died, K. Ja. succ.	196	1715	Rebellion in the north -	84
1603	A great Plague in London	196	1716	A very great frost -	83
1605	Popish Gun-powder Plot	194	1726	Sir Isaac Newton died -	73
1616	Shakspeare the poet died	183	1727	K. Geo. I. died, Geo.II.succ.	72
1625	K. James died, Cha. I.succ.	174	1739	War against Spain declared	60
1641	Bloody Irish massacre -	158	1739	A very great frost -	60
1642	Sir I. Newton born, Dec. 25	157	1743	A great comet appeared	56
1649	K. Charles I. beheaded	150	1744	War against France declared	55
1658	Oliver Cromwell died -	141	1745	Rebellion in Scotland -	54
1660	K. Charles II. restored	139	1748	A general peace -	51
1662	Royal Society instituted	137	1750	Westminster bridge finished	49
1665	Died of the plague 68,586	134	1752	Date and Calendar altered	47
1666	Great fire in London -	133	1756	War against France declared	43
1666	War against Denmark decl.	133	1760	K. Geo.II. died, G. III. succ.	39
1667	Peace with Hol. Fr. & Den.	132	1762	American philos. soc. instit.	37
1672	War against Holland decl.	127	1762	War against Spain declared	37
1672	Halfpence & Farth. coined	127	1763	Peace with France & Spain	36
1674	Peace with Holland procl.	125	1765	Otaheite discovered -	34
1679	Habeas Corpus act passed	120	1770	Blackfriars bridge finished	29
1685	K.Cha.II.died, Ja.II.succ.	114	1772	A revolution in Denmark	27
1688	Prince of Orange landed	111	1772	A revolution in Sweden	27
1688	K. James II. abdicated	111	1775	War against America begun	24
1689	Wm. and Mary crowned	110	1776	America declared independent	23
1693	Hackney coaches established	106	1778	French treaty with America	21
1702	K. Wm. died, Q. Ann succ.	97	1778	War against France begun	21
1702	War against France declared	97	1779	War against Spain begun	20
1707	England & Scotland united	92	1780	War against Holland begun	19
1713	Peace with France procl.	86	1783	A general peace -	16

BIRTH-DAYS, [N. S.] and YEARS, of the ROYAL FAMILY of GREAT BRITAIN.

KING GEORGE III. June 4,	1738	Prince Aug. Fred. Jan. 27,		1773
Prince of Wales, August 12,	1762	Prince Adolph. Fred. Feb. 24,		1774
Duke of York, August 16,	1763	Princess Mary, April 25, -		1776
Duke of Clarence, Aug. 21,	1765	Princess Sophia, Nov. 3, -		1777
Prs. of Wirtem. Septem. 29,	1766	Princess Amelia, Aug. 7, -		1783
Prince Edward, Nov. 2, -	1767	Queen Charlotte, May 19, -		1744
Prs. Augusta Sophia, Nov. 8,	1768	Duchess of Brunsw. Aug. 11,		1737
Prs. Elizabeth, May 22, -	1770	Duke of Gloucester, Nov. 25,		1743
Prince Ernest Augustus, June 5,	1771			

YEARS of BIRTHS of the Principal SOVEREIGN PRINCES of EUROPE.

Pius VI. Pope - -	1717	Francis II. Emp. Germ. -	1767
Victor Amada Maria, K.Sardinia	1726	William V. Stadtholder, -	1748
Paul I. Emperor of Russia,	1754	Charles, IV. King of Spain, -	1748
Maria, Queen of Portugal -	1734	Christian VII. K. of Denmark,	1749
Frederic V. King of Prussia,	1770	Ferdinand IV. King of Sicily,	1751
Gustavus IV. King of Sweden,	1778	Selim III, Grand Seignor -	1761

New Moon,　　6th, 14m. past 4 morn.
First Quarter, 14th, 58m. past 3 morn.　　Sun enters ♒
Full Moon,　21st, 41m. past 5 aftern.　　19d. 11h. 8m.
Last Quarter, 28th, :om. past 10 morn.

1	Tu	Circumcision	8	5	3	55	23 s 0	2 m 40	25
2	W			4		56	22 54	4　3	26
3	Th			3		57	- 48	5　28	27
4	F			3		57	42	6　48	28
5	S	Old Christmas Day		2		58	35	7　55	29
6	F	Epiphany　　Twelfth-day		1		59	28	☽ sets	N
7	M	Plough Monday		0	4	0	21	5 a 8	1
8	Tu	Lucian	7	59		1	13	6　20	2
9	W			58		2	4	7　35	3
10	Th			57		3	21 55	8　46	4
11	F			56		4	46	9　56	5
12	S	Old New-Year's day		55		5	36	11　5	6
13	F	1 Sunday after Epiphany		54		6	26	morn	7
14	M	☉rf.T.b.[Hilary.☾.T.b.		53		7	15	0　12	8
15	Tu			52		8	19	1　23	9
16	W			51		9	20 53	2　35	10
17	Th	Old Twelfth Day　[Prisca		49		11	41	3　50	11
18	F	Qu. Char. birth day kept		48		12	29	5　3	12
19	S			47		13	16	6　16	13
20	F	Septuagesima Sunday		45		15	3	7　17	14
21	M	Agnes. Hil.T.1re. [Fabian		44		16	19 50	☽ rises	F
22	Tu	Vincent		42		18	36	5 a 5	16
23	W	Hilary Term begins		41		19	22	6　32	17
24	Th			42		20	8	8　3	18
25	F	Conversion of St. Paul		38		22	18 53	9　28	19
26	S			37		23	38	10　53	20
27	F	Sexage.S. Pr. Aug. Fre. b.		35		25	23	morn	21
28	M	[Hilary 2 re.		33		27	7	0　19	22
29	Tu			32		28	17 51	1　43	23
30	W	K. Charles I. mart. 1649		30		30	34	3　8	24
31	Th			28		32	28	4　26	25

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun East	Cl. bef. S.	7 Stars So.
1	7　50	0　6	6　0	6　0	4　41	4　8	8 a 44
6	58	14	5　58	2	43	6　25	22
11	8　8	24	54	6	46	8　30	0
16	18	34	49	11	49	10　19	7　39
21	32	48	44	16	53	11　50	18
26	46	1　2	38	22	58	13　46	6　56

New Moon,	4th, 14m. paſt	8 night.	
Firſt Quarter,	13th, 16m. bef.	1 morn.	Sun enters ♓
Full Moon,	20th, 3m. paſt	5 morn.	18d. 1h. 56m.
Laſt Quarter,	26th, 22m. paſt	8 night.	

M D	W D	Sundays, Holidays, &c.	Sun riſes	Sun ſets	Sun's decl.	☽ riſes & ſets	☽'s Age
1	F		7 27	4 33	17ˢ 0	5 m 37	26
2	S	Purification or Candl. d.	25	35	16 43	6 36	27
3	F	Quinq. or Shrove Sunday	23	37	25	7 26	28
4	M	Hilary Term 3 ret. [Blaſe	22	38	8	☽ ſets	N
5	Tu	Shrove Tueſday Agatha	20	40	15 49	5 a 12	1
6	W	Aſh Wedneſday	18	42	31	6 24	2
7	Th		16	44	12	7 36	3
8	F		14	46	14 53	8 46	4
9	S	Hilary Term 4th return	13	47	34	9 53	5
10	F	Quadra. or 1 Sun. in Lent	11	49	14	11 3	6
11	M		9	51	13 55	morn	7
12	Tu	Hilary T. e. Cam. T. d. m.	7	53	35	0 13	8
13	W	Ember Week Old Can. day	5	55	15	1 26	9
14	Th	Valentine	3	57	12 54	2 40	10
15	F		1	59	34	3 51	11
16	S		0	5 0	13	4 58	12
17	F	2 Sunday in Lent	6 58	2	11 52	5 53	13
18	M		56	4	31	6 36	14
19	Tu	.	54	6	9	7 6	15
20	W		52	8	10 48	☽ riſes	F
21	Th		50	10	26	7 a 1	17
22	F		48	12	4	8 31	18
23	S	.	46	14	9 42	9 59	19
24	F	3 S. in Lent. St. Matthias	44	16	20	11 29	20
25	M	[Pr. Adol. Fr. b.	42	18	8 58	morn	21
26	Tu		40	20	36	0 56	22
27	W		38	22	13	2 15	23
28	Th		36	24	7 50	3 34	24

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S.	7 Stars So.
1	9 6	1 22	5 31	6 29	5 4	14' 2"	6 a 33
6	24	40	24	37	9	30	11
11	42	58	16	45	14	38	5 52
16	10 0	2 16	7	54	20	26	33
21	20	36	4 58	7 3	26	13 56	14
26	40	56	49	12	32	9	4 54

New Moon,	6th,	34m. paſt	1 aftern.	
First Quarter,	14th,	22m. paſt	6 aftern.	Sun enters ♈
Full Moon,	21ſt,	53m. paſt	2 aftern.	20d. 2h. 17m.
Laſt Quarter,	28th,	34m. paſt	7 morn.	

1	F	David		6 34	5 26	7 8 28	4 m 36	25
2	S	Chad		32	28	5	5 24	26
3		4th or Midlent Sunday		30	30	6 42	5 56	27
4	M			29	31	19	6 21	28
5	Tu			27	33	5 56	6 40	29
6	W			25	35	32	☽ ſets	N
7	Th	Perpetua		23	37	9	6 a 36	1
8	F			21	39	4 46	7 46	2
9	S			19	41	22	8 54	3
10		5 Sunday in Lent		17	43	3 59	10 5	4
11	M			15	45	35	11 18	5
12	Tu	Gregory		13	47	12	morn	6
13	W			11	49	2 48	0 30	7
14	Th			9	51	24	1 42	8
15	F	Cam. Term ends		7	53	1	2 51	9
16	S	Oxf. Term ends		5	55	1 37	3 48	10
17		Palm Sunday St. Patrick		3	57	13	4 34	11
18	M	Edward K. W. S.		1	59	0 50	5 10	12
19	Tu			5 59	6 1	26	5 35	13
20	W			57	3	2	5 56	14
21	Th	Benedict : Maundy Thursday		55	5	n 21	☽ riſes	F
22	F	Good Friday		53	7	45	7 a 33	16
23	S			51	9	1 9	9 6	17
24		Eaſter Day		49	11	32	10 39	18
25	M	Lady Day : Eaſter Mönd.		47	13	56	morn	19
26	Tu	Eaſter Tueſday		45	15	2 19	0 8	20
27	W			43	17	43	1 30	21
28	Th			41	19	3 6	2 38	22
29	F			39	21	30	3 31	23
30	S			37	23	53	4 9	24
31		Low Sunday		35	25	4 16	4 35	25

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S.	7 Stars So.
1	10 52	3 8	4 44	7 17	5 56	12' 36"	4 a 44
6	11 10	26	32	29	42	11 29	26
11	30	46	22	40	48	10 12	8
16	50	4 6	12	50	55	8 48	3 49
21	12 10	26	2	8 1	6 1	7 17	31
26	30	46	3 50	13	7	5 44	13

New Moon,	5th, 21m. paſt 7 morn.	
Firſt Quarter,	13th, 47m. paſt 7 morn.	Sun enters ♉
Full Moon,	19th, 40m. paſt 11 night.	19d. 14h. 56m.
Laſt Quarter,	26th, 30m. paſt 8 night.	

1	M		5	33	6	27	4♌39	4m56	26
2	Tu			31		29	5 2	5 11	27
3	W	Orf. and Cain. T. b. Richa.		29		31	25	5 23	28
4	Th	Ambroſe		27		33	48	5 35	29
5	F	Old Lady Day		25		35	6 11	☽ ſets	N
6	S			23		37	34	8 a 0	1
7	F	2 Sunday aft. Eaſter		21		39	56	9 12	2
8	M	Eaſter Term 1 ret.		19		41	7 1	*10 28	3
9	Tu			17		43	4	11 42	4
10	W	Eaſter Term begins		16		44	8 3	morn	5
11	Th			14		46	25	0 50	6
12	F			12		48	47	1 51	7
13	S			10		50	9 9	2 40	8
14	F	3 Sunday after Eaſter		8		52	31	3 18	9
15	M	Eaſter Term 2 return		6		54	52	3 44	10
16	Tu			4		56	10 13	4 7	11
17	W			2		58	35	4 26	12
18	Th			0	7	0	55	4 41	13
19	F	Alphege	4	58		2	11 16	☽ riſes	F
20	S			57		3	37	8 a 10	15
21	F	4 Sunday after Eaſter		55		5	57	9 46	16
22	M	Eaſter Term 3 return		53		7	12 17	11 14	17
23	Tu	St. George		51		9	3	morn	18
24	W			49		11	57	0 32	19
25	Th	St. Mark. Prs. Mary born		47		13	13 17	1 34	20
26	F			45		15	36	2 17	21
27	S			44		16	55	2 47	22
28	F	5th or Rogation Sunday		42		18	14 14	3 9	23
29	M	Eaſter Term 4 return		40		20	33	3 25	24
30	Tu			38		22	51	3 39	25

Days	L. of D.		Day Inc.		D. breaks		Tw. ends		Sun Eaſt		Cl. bef. S.		7 Stars So.	
1	12	54	5	10	3	33	8	28	6	15	3′	53″	2	2 51
6	13	4		30		21		40		21	2	24		33
11		32		48		6		55		27	0	59		14
16		52	6	8	2	54	9	7		33	a	18	1	56
21	14	10		26		40		21		39	1	27		37
26		30		46		25		37		44	2	24		18

New Moon,	4th, 14m. past 12 night.	
First Quarter,	12th, 9m. past 5 aftern.	Sun enters ♊
Full Moon,	19th, 51m. past 7 morn.	2od. 15h. 25m.
Last Quarter,	26th, 5m. past 11 morn.	

1	W	St. Philip and St. James	4 37	7 23	15 ♑ 10	3 m 51	26
2	Th	Ascension or Holy Thurs.	35	25	28	4 1	27
3	F	*Inv. of the Cross.* Ea. T. 5re.	33	27	45	4 13	28
4	S		31	29	16 3	☽ sets	N
5	F	Sunday after Ascension	30	30	20	8 a 23	1
6	M	East. Term e. *J. E a P. L.*	28	32	37	9 35	2
7	Tu		26	34	54	10 46	3
8	W		25	35	17 10	11 50	4
9	Th	☉rt. Term ends	23	37	26	morn	5
10	F		21	39	42	0 43	6
11	S		20	40	57	1 23	7
12	F	Whit-Sunday. *Old Mayday*	18	42	18 12	1 53	8
13	M	Whit-Monday	17	43	27	2 16	9
14	Tu	Whit-Tuesday	15	45	42	2 34	10
15	W	Ember Week	14	46	56	2 49	11
16	Th		12	48	19 10	3 4	12
17	F	Prs. of Wales born	11	49	24	3 19	13
18	S		9	51	37	3 36	14
19	F	Trinity Sun. Q. Char., b.	8	52	50	☽ rises	F
20	M	T. T. 1 re. [*Dunst. C. T. d. m.*	7	53	20 2	10 a 9	16
21	Tu		5	55	15	11 20	17
22	W	Prs. Elisabeth born 1770	4	56	27	morn	18
23	Th	Corpus Chr. [☉rf. T. b.	3	57	38	0 12	19
24	F	Trinity Term begins	2	59	49	0 49	20
25	S	[*Augustin*	0 8	0	21 0	1 14	21
26	F	1 Sunday after Trinity	3 59	1	11	1 32	22
27	M	*Ven. Bede.* Trin. Ter. 2 re.	58	2	21	1 46	23
28	Tu		57	3	31	1 59	24
29	W	K. Char. II. restored	56	4	40	2 10	25
30	T		55	5	49	2 20	26
31	F		54	6	58	2 33	27

Days	L. of D.	Day Inc.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars So.
1	14 46	7 2	2 7	9 55	6 50	3' 8"	0 a 59
6	15 4	20	1 52	10 10	55	39	40
11	20	36	30	33	7 0	55	21
16	36	52	7	56	4	58	1
21	50	8 6	0 32	11 38	8	47	11 m 42
26	16 2	18	No real Night		12	23	22

New Moon,	3d,	5m. paſt	3 aftern.		
Firſt Quarter,	10th,	28m. paſt	11 night.	Sun enters ♋	
Full Moon,	17th,	5m. paſt	4 aftern.	21d. oh. 3m.	
Laſt Quarter,	25th,	14m. paſt	3 morn.		

1	S	*Nicomede*	3 53	8	7	22n 6	2 m 45	28
2	F	2 Sunday after Trinity	52	8		14	3 3	29
3	M	Trin. Te. 3 ret.	51	9		22	D ſets	N
4	Tu	King Geo. III. born 1738	50	10		29	9 a 42	1
5	W	Pr. Erneſt Auguſtus born	49	11		35	10 39	2
6	Th	[*Boniface*	49	11		42	11 22	3
7	F		48	12		48	11 56	4
8	S		47	13		53	morn	5
9	F	3 Sunday after Trinity	47	13		58	0 19	6
10	M	Tii. Term 4 return	46	14	23 3	0 38	7
11	Tu	St. Barnabas	45	15		7	0 53	8
12	W	Trinity Term ends	45	15		11	1 7	9
13	Th		44	16		15	1 21	10
14	F		44	16		18	1 37	11
15	S		44	16		21	1 56	12
16	F	4 Sunday after Trinity	44	16		23	2 20	13
17	M	*Alban*	43	17		25	D riſes	F
18	Tu					26	9 a 55	15
19	W					27	10 40	16
20	Th	*Tranſ. Ed. K. W. S.*				28	11 10	17
21	F	Longeſt Day				28	11 31	18
22	S					28	11 48	19
23	F	5 Sunday after Trinity				27	morn	20
24	M	Nativity of St. John Bapt				26	0 0	21
25	Tu	[Midſ. Day	43	17		25	0 12	22
26	W		44	16		23	0 23	23
27	Th		44	16		21	0 34	24
28	F		44	16		18	0 47	25
29	S	St. Peter	44	16		15	1 3	26
30	F	6 Sunday after Trinity	45	15		11	1 23	27

Longeſt Day at Lond. is 16h. 34m. 4ſec.

allowing 9m. 16ſec. for refraction.

Days	L. of D.	Day Inc.	D.breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	16 14	8 30			7 15	2′ 36″	10 m 57
6	22	38	No real night, but		18	1 46	37
11	30	46	conſtant day		19	0 49	17
16	32	48	or twilight.		20	be. 13	9 58
21	34	50			21	1 17	35
26	32	odec. 2			20	2 21	15

New Moon,	3d,	27m. paſt	3 morn.	
Firſt Quarter,	10th,	12m. paſt	4 morn.	Sun enters ♌
Full Moon,	17th,	17m. paſt	1 morn.	22d. 10h. 53m.
Laſt Quarter,	24th,	36m. paſt	8 night.	

1	M		3	45	8	15	23 n 7	1 m♌	28
2	Tu	*Viſitation V.M.* Cam. Com.		46		14	3	2 29	29
3	W	Dog Days begin		46		14	22 58	D ſets	N
4	Th	*Tranſlation of St. Martin*		47		13	53	9 a 5	1
5	F	**Cam. T. e. Old Midſum.**		48		1	48	10 1	2
6	S			48		12	42	10 28	3
7	F	7 Sunday after Trinity		49		11	36	10 5	4
8	M	**Oxford Act** [*Tho. à Becket*		50		1	2	11 9	5
9	Tu			51		9	22	11 2:	6
10	W			51		9	14	11 37	7
11	Th			52		8	6	11 5	8
12	F			53		7	21 58	morn	9
13	S	**Oxf. Term ends**		54		6	50	0 1:	10
14	F	8 Sunday after Trinity		55		5	41	0 45	11
15	M	*Swithin*		56		4	31	1 28	12
16	Tu			58		2	22	2 25	13
17	W			59		1	12	D riſe	F
18	Th		4	0		0	1	9 a 37	15
19	F			1	7	59	20 5	9 4:	16
20	S	*Margaret*		2		5	30	10 2	17
21	F	9 Sunday after Trinity		4		56	28	10 14	18
22	M	*Magdalen*		5		55	16	10 25	19
23	Tu			6		54	4	10 37	20
24	W			7		53	19 51	10 48	21
25	Th	St. James		9		5	38	11 2	22
26	F	*Anne*		10		5	25	11 20	23
27	S			12		48	12	11 45	24
28	F	10 Sunday after Trinity		1		47	18 58	morn	25
29	M			15		45	44	0 2	26
30	T			16		4:	2:	1 7	27
31	W			18		42	1:	2 10	28

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. bef. S	D Stars Sf.
1	16 30	0 4			7 19	3′ 21″	8 m 54
6	24	10			18	4 17	34
11	16	18	No real Night		15	5 2	:17
16	4	30			13	36	7 53
21	15 52	42			9	58	33
26	40	54	0 44	11 14	5	6 5	13

New Moon,	1st, 46m. paſt 1 aftern.	
Firſt Quarter,	8th, 55m. paſt 8 morn.	
Full Moon,	15th, 29m. paſt 0 noon.	Sun enters ♍
Laſt Quarter,	23d, 2m. paſt 2 aftern.	22d. 17h. 17m.
Full Moon,	30th, 0m. paſt 11 night.	

1	Th	Lammas Day	4	19	7	41	18 n c		ſets	N
2	F			21		39	17	44	8 a 39	1
3	S			22		38		29	8 59	2
4	F	11 Sunday after Trinity		24		36		13	9 14	3
5	M			26		34	16	57	9 29	4
6	Tu	*Transfiguration*		27		33		40	9 43	5
7	W	Prs. Amelia born 1783		29		31		23	9 59	6
8	Th	[N. of Jeſus		31		29		6	10 19	7
9	F			32		28	15	49	10 46	8
10	S	*Laurence* [Dog Da. e.		34		26		32	11 23	9
11	F	12 S. af. Tr. Duc. Brunſ. b.		36		24		14	morn	10
12	M	Prince of Wales born 1762		37		23	14	51	0 15	11
13	Tu	[Old Lam. Day		39		21		38	1 20	12
14	W			41		19		19	2 36	13
15	Th	*Aſſumption of V. M.*		43		17		0	☽ riſes	F
16	F	Duke of York born 1763		45		15	13	42	8 a 10	15
17	S			46		14		22	8 22	16
18	F	13 Sunday after Trinity		48		12		3	8 34	17
19	M			50		10	12	43	8 46	18
20	Tu			52		8		24	8 59	19
21	W	Duke of Clarence b. 1765		54		6		4	9 12	20
22	Th			55		5	11	44	9 27	21
23	F			57		3		23	9 49	22
24	S	St. Bartholomew		59		1		3	10 19	23
25	F	14 Sunday after Trinity	5	1	6	59	10	42	10 59	24
26	M			3		57		21	11 54	25
27	Tu			5		55		0	morn	26
28	W	*Auguſtine of H.*		7		53	9	39	1 6	27
29	Th	*St. J. Baptiſt beheaded*		9		51		18	2 25	28
30	F			10		50	8	56	☽ ſets	N
31	S			12		48		35	7 a 25	1

Days	L. or D.		Day dec.		D. breaks		Tw. ends		Sun Eaſt		Cl. bef. S.		7 Stars S.	
1	15	22	1	12	1	22	10	35	7	0	5'	53"	6 m	49
6		6		28		42		15	6	54		31		30
11	14	48		46	2	0	9	57		50	4	51		11
16		30	2	4		18		40		45	3	56	5	52
21		12		22		33		25		39	2	49		33
26	13	54		40		48		10		34	1	31		15

First Quarter,	6th,	59m. paſt	2 aftern.	
Full Moon,	14th,	31m. paſt	2 morn.	Sun enters ♎
Laſt Quarter,	22d,	23m. paſt	7 morn.	22d. 13h. 49 m.
New Moon,	29th,	4m. paſt	8 morn.	

1	F	15 Sunday after Trinity	5	14 0	4	3 m 3	7 a 38	2
2	M	London burnt 1666 [Giles		16	44	7 5	7 54	3
3	Tu			18	42	29	8 11	4
4	W			20	40	7	8 30	5
5	Th			22	38	6 44	8 55	6
6	F			24	36	22	9 28	7
7	S	*Enurchus*		26	34	(	10 14	8
8	F	16 Sunday after Trinity		28	32	5 37	11 18	9
9	M	[*Nativity V. M.*		30	30	14	morn	10
10	Tu			32	28	4 57	0 31	11
11	W			34	26	29	1 50	12
12	Th			35	25	6	3 7	13
13	F			37	23	3 43	4 25	14
14	S	*Holy-Cross*		39	21	23	D riſes	F
15	F	17 Sunday after Trinity		41	19	2 57	7 a 1	16
16	M			43	17	33	7 13	17
17	Tu	*Lambert*		45	15	10	7 25	18
18	W	Ember Week		47	13	1 47	7 40	19
19	Th			49	11	24	7 52	20
20	F			51	9	0	8 25	21
21	S	St. Matthew		53	7	0 3	9 0	22
22	F	18 S. aft. Tr. K. Geo. 3 cr.		55	5	13	9 46	23
23	M			57	3	0 3 10	10 51	24
24	Tu			59	1	33	morn	25
25	W	*Old Holy Rood*	6	1 5	59	57	0 7	26
26	Th	*Cyprian*		3	57	1 20	1 31	27
27	F			5	55	44	3 0	28
28	S	[Prs. Wirt. b.		7	53	2 7	4 29	29
29	F	19 S. af. Tri. St. Michael.		9	51	3	D ſets	N
30	M	*Jerome*		11	49	54	6 a 24	1

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	13 32	3 2	3 5	8 54	6 27	0' 15"	4 m 53
6	12	22	19	40	21	1 52	35
11	12 52	42	32	27	14	3 34	17
16	34	4 0	43	16	8	5 19	3 59
21	14	20	54	5	2	7 4	42
26	11 54	40	4 5	7 54	5 56	8 47	24

First Quarter,	5th, 34m. past 11 night.	Sun enters ♏
Full Moon,	13th, 24m. past 7 aftern.	
Last Quarter,	21ft, 44m. past 10 night	22d. 21h. 51m.
New Moon,	28th, 36m. past 5 aftern.	

1	Tu	Remigius	6 13	5 47	3s 17	6 a 41	2
2	W		15	45	41	7 4	3
3	Th		17	43	4 4	7 35	4
4	F		19	41	27	8 18	5
5	S		21	39	50	9 17	6
6	F	20 Sunday after Trinity	23	37	5 13	10 28	7
7	M	[Faith	25	35	36	11 46	8
8	Tu		27	33	59	morn	9
9	W	Denys	28	32	6 22	1 5	10
10	Th	Orf. and Cu.T.b. O.Mic.	30	30	45	2 21	11
11	F		32	28	7 8	3 35	12
12	S		34	26	30	4 47	13
13	F	21 Sunday after Trinity	36	24	53	D rises	F
14	M	[Tranf. K. Edw. Con.	38	22	8 15	5 a 40	15
15	Tu		40	20	38	5 56	16
16	W		42	18	9 0	6 12	17
17	Th	Etheldred	44	16	22	6 34	18
18	F	St. Luke	46	14	44	7 4	19
19	S		48	12	10 5	7 47	20
20	F	22 Sunday after Trinity	50	10	27	8 43	21
21	M		52	8	49	9 52	22
22	Tu		54	6	11 10	11 11	23
23	W		55	5	31	morn	24
24	Th	[Crispin	57	3	52	0 34	25
25	F	King Geo. III. accession	59	1	12 13	2 0	26
26	S	King Geo. III. proclaimed	7 1	4 59	33	3 29	27
27	F	23 Sunday after Trinity	3	57	54	4 57	28
28	M	St. Simon and Jude	5	55	13 14	D sets	N
29	Tu		7	53	34	5 a 11	1
30	W		9	51	54	5 35	2
31	Th		10	50	14 13	6 15	3

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	11 34	5 0	4 17	7 42	5 50	10' 24"	3 m 6
6	14	20	28	31	44	11 54	2 48
11	10 56	38	38	21	37	13 15	29
16	36	58	48	11	31	14 24	10
21	16	6 18	57	2	25	15 18	1 51
26	9 58	36	5 6	6 53	19	55	31

First Quarter, 4th, 34m. paſt 11 morn.
Full Moon,   12th, 8m. paſt 2 aftern.   Sun enters ♐
Laſt Quarter, 20th, 50m. paſt 11 morn.   21d. 18h. 9m
New Moon,   27th. 50m. paſt 3 morn.

1	F	All Saints	7	1	+ 48	14	35	7 a 9	4
2	S	Pr. & w. n. *All Soul*		14	46		52	8 10	5
3	F	24 S. a. Tri. Pr. Sophia b.		16	44	15	11	9 34	6
4	M	K. W. land. [Mic.T.1 re.		18	42		29	10 54	7
5	Tu	Powder Plot 160		19	41		4	morn	8
6	W	*Leonard*. Mich. Term be.		21	39	16	5	0 12	9
7	Th			23	37		23	1 27	10
8	F	Prs. Aug. Sophia b. 1768		24	36		41	2 38	11
9	S	Lord Mayor's day at Lon.		26	34		58	3 49	12
10	F	25 Sunday after Trinity		28	32	17	15	4 59	13
11	M	*Martin*		30	30		32	6 11	14
12	Tu	Mic.T.2 r. *Cam. T. di. m.*		31	29		48	D riſes	F
13	W	*Britius*		33	27	18	4	4 a 40	16
14	Th			34	26		20	5 8	17
15	F	*Machutus*		36	24		35	5 46	18
16	S	[*Hugh*		37	23		50	6 36	19
17	F	26 Sunday after Trinity		39	21	19	5	7 41	20
18	M	Mich. Term 3 return		40	20		19	8 54	21
19	Tu			42	18		34	10 13	22
20	W	*Edmund K. and mart.*		43	17		47	11 36	23
21	Th			45	15	20	1	morn	24
22	F	*Cæcilia. Old Mart. day*		46	14		14	0 59	25
23	S	*Clement*		47	13		26	2 23	26
24	F	27 Sunday after Trinity		49	11		38	3 51	27
25	M	Duke of Gloucester born		50	10		50	5 21	28
26	Tu	[*Cathe.* Mic.T.4 re.		51	9	21	2	6 55	29
27	W			52	8		13	D ſets	N
28	Th	Mich. Term ends		54	6		23	4 a 45	1
29	F			55	5		34	5 49	2
30	S	St. Andrew		56	4		43	7 6	3

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun Eaſt	Cl. aft. S.	7 Stars So.
1	9 36	6 58	5 15	6 44	5 13	16′ 14″	1 m 10
6	18	7 16	22	37	7	9	0 50
11	0	34	29	30	2	15 43	30
16	8 46	48	35	24	4 57	14 57	9
21	30	8 4	42	18	53	13 49	11 a 44
26	18	16	48	12	49	12 20	23

First Quarter,	4th,	26m. past	3 morn.	
Full Moon,	12th,	55m. past	8 morn.	Sun enters ♑
Last Quarter,	19th,	41m. past	10 night.	21d. 6h. 33m.
New Moon,	26th,	54m. past	2 aftern.	

1	F	Advent Sunday	7	57	4	3	21 s 53	8 a 27	4
2	M			58		2	22 2	9 49	5
3	Tu			59		1	10	11 7	6
4	W		8	0		0	19	morn	7
5	Th			1	3	59	26	0 22	8
6	F	Nicholas		2		58	34	1 32	9
7	S			2		58	40	2 41	10
8	F	2 Sun. in Adv. *Conception*		3		57	47	3 49	11
9	M			4		56	53	5 0	12
10	Tu			4		56	58	6 12	13
11	W			5		55	23 3	7 23	14
12	Th			5		55	8	☽ rises	F
13	F	*Lucy*		6		54	12	4 a 22	16
14	S			6		54	16	5 22	17
15	F	3 Sunday in Advent		7		53	19	6 35	18
16	M	Cam. Ter. e. O. *Sapientia*		7		53	21	7 53	19
17	Tu	Oxf. Term ends		7		53	24	9 12	20
18	W	Ember Week		8		52	25	10 33	21
19	Th						27	11 54	22
20	F						28	morn	23
21	S	St. Thomas. **Shortest Day**					28	1 16	24
22	F	4 Sunday in Advent					28	2 40	25
23	M						27	4 10	26
24	Tu						26	5 43	27
25	W	Christmas Day					25	7 11	28
26	Th	St. Stephen		7		53	23	☽ sets	N
27	F	St. John Ev.		7		53	20	4 a 26	1
28	S	Innocents Day		7		53	17	5 45	2
29	F	1 Sunday after Christmas		6		54	14	7 13	3
30	M			6		54	10	8 32	4
31	Tu	*Silvester*		5		55	6	9 40	5

(center column, vertical text) Shortest Day at Lond. is 7h. 44m. 17sec. — allowing 9m. 5sec. for refraction.

Days	L. of D.	Day dec.	D. breaks	Tw. ends	Sun East	Cl. aft. S.	7 Stars	So
1	8 6	8 28	5 54	6 6	4 46	10' 34"	11 a	2
6	7 56	38	57	3	43	8 31	10	4
11	50	44	58	2	41	6 17		18
16	46	48	59	1	40	3 54	9	56
21	44	50	6 0	0	39	1 25		34
26	- 46	oinc. 2	5 59	1	40	6		12

CHRONOLOGICAL NOTES, &c. in 1799.

Dominical Letter	F	Roman Indiction	2	Easter Day	Mar. 24
Golden Number	14	Septuage. Sun.	Jan. 20	Ascension Day	May 2
Epact -	23	Shrove Sunday	Feb. 3	Whit-Sunday	May 12
Cycle of the Sun	16	Lent begins	Feb. 6	Advent-Sun.	Dec. 1

ECLIPSES, &c.

THERE will be only two eclipses this year, and both of the Sun; but neither of them will be visible in this country.

I. MAY 4, the Sun is eclipsed, but invisible here, at 12h 15m night.

II. OCTOBER 28, the Sun is eclipsed, invisible, at 5h 36m afternoon.

MAY 5, the planet Mercury will transit or pass over the face of the Sun. Begins about half past 8 morn; ends about ¼ past 3 afternoon.

VENUS is an evening star till October 16; then a morning star to the end.

JUPITER is an evening star till May 30; then a morning star till Dec. 17; after that an evening star to the end.

ANSWERS to the ENIGMAS.

1 Watering Pot	6 Bar	*Suppl. Enigmas.*	5 Hair Pencil
2 Blush	7 Name	*1* Fear	6 H
3 Fame	8 Needle	2 Paint	7 *or Pr.* Happi-
4 Plague	9 Love	3 Palm	[ness.
5 Box	10 *or Pr.* Bedfellow	4 Bee	

Answers *to the* Prize Enigma.

1. *By Mr. Robert Bradley, Geddington.*

If e'er at the altar of Hymen I kneel,
A lawful companion to be,
All the passion of love may my Delia feel,
And that wholly kindled by me.

In her blithsome young breast, where kind nature has stor'd [fine,
That bright genius my parts to refine,
Such a *Bedmate* by me wou'd be ever ador'd; [be mine.
Then, dear ladies, the prize wou'd

2. *By Mr. W. Clark, Cams-Hall, near Fareham.*

With mind averse to wedded strife,
Ralph, squandering his treasure,
Had vow'd he'd never seek a wife
To interrupt his pleasure.
But, changing suddenly his mind,
Press'd Sue to be his bride:

"What woman can you think to find,"
Indignant Sue reply'd, [find,"
"Wou'd with a sot agree to wed,
(For Ralph was mostly mellow)
"I shou'd indeed be loth to *Bed*
"With any tippling *fellow*."

3. *By Edwin; to Miss Eliza Fox.*

Why, Eliza, shou'd I
Weep, languish, or sigh,
Since Damon, you say, is possess'd of your love;

But endeavour to find
A fair to my mind,
Who will constant and kind to me prove,

Then, Eliza, to you,
As a lover, adieu!
Still believe me your friend most ob-
sequiously;

And may you resign,
Soon at Hymen's shrine,
Your hand, and may Damon your
Bedfellow be.

4. By Mr. John Rimmer, of Liverpool.

One night, ingenious Fildes and I,
Laid violent hands on Madam Di,
And her Companion, who 'tis clear,
A Fellow partner does appear:
Whose practice long has been, 'tis
known,
To trade at large from town to town,
With mystic treasures, magic rings,
And spells, and such enchanting
things;

By which whole nights I've oft been
kept
From Bed, while others soundly
slept.
But since these culprits we have
found,
Stern justice says, they shall be bound,
And plac'd where future times, with
joy,
May see the fate of Lady Di.

5. By Serena, Brook-street, Holborn, London.

Will you admit me, Lady Di?
I am your friend, tho' seldom I
Take courage to appear
Among your learned votaries,
Whose shining talents always please,
And witty ladies fair.

To guess your prize wou'd pleasing
prove,
Tho' very queer, I ardent strove
The trophy to obtain:

But to make " Adam I, I he,
" And Eve too I, and I too she,"
Endeavours I thought vain.

Quite mortify'd, to bed I crept,
Without a Bedfellow I slept:
Bedfellow!—sure that's right!
Yes, without magic art or spells,
Your puzzle's solv'd, so, Mr.
Wells,
I wish you now good night.

6. By Mr. Tho. Smart, Burton on the Wolds.

Throughout this life's short chequer'd
maze,
How blest the swains who wed,

With every virtue, every grace,
A partner for their bed.

7. By Mr. T. Weedon, Newbury.

In the grave's dreary Bed we are
fellows: [proud!
Know this, and be humble, ye

Distinctions must cease, when the
spirit is fled, [shroud.
And the body's enwrap'd in a

8. By Miss Eliz. Wright, of Flaxton.

May every Pair whom Hymen joins,
Enjoy contentment sweet.

Then may the fair sex never fear
Sly Cupid's darts to meet.

Other separate and ingenious answers to the Prize Enigma, beside those in-
serted in the Supplement, were given by the following ladies and gentlemen:
viz. J. Bayley. John Brockbank, W. Butterman, E. Clarence, Tho. Coul-
ton, Tho. Coultherd, Sarah Cowen, Wm. Cross, R. Dutton, Wm. Francis,
jun. Mrs. Furnass, A. Gibbs, Jane Hales, John Hawkes, Tho. Heynes,
Jonathan Horn, Rd. Humber, James Mulcaster, Parthenia, Petruchio, Rig-
dum Funnidos, Tho. Rimmer, Alex. Rowe, John Rutherford, Wm. Saint,
J. Sawyer. Rev. I. Shackleton, Wm. Stainsby, J. J. Thompson, John
Waters, Joseph Wilson, Gilbert Young, &c.

GENERAL ANSWERS *to the* ENIGMAS.

1. *By Mr. W. Butterman, of North Cave.*

Having a little time to ſpend,
An anſwer to th' Enigs I'll ſend,
Juſt as I gueſs the ſame;
And hope, Sir, if you find them right,
You'll put them down in black and
   white,
In Dia's page of *Fame*.

Plagu'd ſore I was the firſt to ſcan;
At length I found a *Watering-pan*
   Would free it from diſguiſe.
The reſt, *Box, Needle, Love,* and *Bar*.
I bluſh—but, Sir, I'll paſs them o'er,
   And quickly *Name* the prize *.
      * *Bedfellow.*

2. *By Mr. Tho. Coulſon, of Rookhope.*

Ladies, I hope, you'll take it well,
If all the riddles I ſhall tell.
The firſt a *Watering-pan* will ſhow;
The next a *Bluſh*, as well you know;
The 3d doth *Fame* ſo well conceal;
The 4th a *Plague* you may reveal;

The 5th's a *Box*, as I explore;
The 6th's a *Bar* to hold the door;
The 7th's a *Name* I underſtand;
The 8th's a *Needle* in your hand;
The ninth is *Love*; and, ladies fair,
A *Bedmate* will the prize declare.

3. *The obſtinate Cook;* by X. Dino.

For ſhame! you make me *Bluſh*,
Cries Doll the cook to Joe;
Plague on your noiſe; for goodneſs
Or I'll give you a *Blow*.   [huſh,

Your flattery I hate,
Of *Love* you've but the *Name*;
Such lingo might ſuit Nan or Kate,
Or girls of meaner *Fame*.

Then get you gone, I ſay:
The *Pot* I muſt attend;
The *Bar* contains a girl more gay;
'Tis *Needleſs* time to ſpend.

If Kate and Nan ſay no,
Lay ſiege to Arabella;
And ſhe will ſure, for aught I know,
Make a warm *Bedfellow.*

4. *An Old Bachelor's Addreſs to Youth;* by Mr. R. Dutton.

Hail! happy youth, poſſeſſing ev'ry grace,
And mark on old greyheaded bach'lor's caſe;
Who once was young, and anxious for a wife,
Yet durſt not venture on a married life.
   My vain and idle fears I *Bluſh* to own,   2
But *Fame* has mark'd my *Name* where'er I'm known.   3, 7
Nature's ſtrong impulſe I reſiſted long,
Tho' reaſon always told me I was wrong.
The bugbear was, that wedlock made us poor;
Such ſcruples bring a *Plague* and *Bar* the cure.   4, 6
Wifeleſs and childleſs I, with ſtore of wealth:
And what availeth all my hoarded pelf?
Thoſe who ſhould *Love* me beſt, my death moſt crave;   9
They'll ſpend my all, and dance upon my grave;
Nor lay a ſtone, the ſtranger to appriſe,
By pointing out, where poor Pillgarlick lies.
Aſpiring youth, ſhun an old bac'hlor's fate,
And take a *Bedfellow* ere 'tis too late.   10
      B

In *Needle*-work her evenings she will spend,   8
You with your pipe, your bottle, and your friend ;
The *snuff-box* next is handed round the room ;   5
The *smelling-bottle* gives the fresh perfume.   1
Mean time the lisping, prattling tribe appear,
And play their gambols round their mamma's chair.
For joys like these my gold I'd now forego ;
But such a life a bach'lor cannot know.
Sexes should join, as angels do above,
Not to increase their wealth, but prove their love.

5. *The Old Maid*; *by the Rev. Mr. Ewbank, Thornton-Steward,*

Tho' I *Love* men of science, I ne'er yet could find   9
A *Bedfellow*, just in all points to my mind.   10
To the *Name* of a suitor I sometimes object,   7
Whom, I *Blush* to acknowledge, I else would respect.   2
The *Fame* of my fortune, my person, and parts,   3
Brought e'en rustics to *Plague* me, and talk about darts :   4
But such, for the future, I mean to exclude,
By *Barring* my door, that they may not intrude.   6
For unless I can find a right partner for life,
I prefer an old maid to the title of wife.
With my *Needle*, *Box*-iron, and books, I employ   5, 8
Myself in the house, and I sometimes enjoy
A walk in my garden, when flow'rs can be cund ;
And sometimes I rove my estate all around.
To water my garden I have a small *Pan :*
In short, I want nought—but a suitable man
Thus something is wanting in all states below ;
And, sooner or later, we all find it so.
True happiness here does not make her abode ;
But virtue, to find her, directs us the road.

6. *By Mr. John Fildes, of Liverpool.*

First, Allison, the tuneful bard,
Whose polish'd lines deserve regard,
With *Watering-pot* leads on the way ;
Then comes the *Blush* of Fanny Bay,
With Bayley's *Fame*, well known to
And *Plague*, caus'd by L. W. D.[me,
My *Box* succeeds, and all will praise
The *Bar* in Nichols's sweet lays.
All must admire the *Name* of Smart,
And Woolston's *Needle* shews much art.
Love well describ'd is by Miss Wright ;
The prize itself comes next in sight,
The *Bedfellow* of Mr. Wells,
That for true wit the rest excells.

7. *A Lyric Epistle to Madam Diaria ; by Rigdum Funidos.*

While others barter ease for state,
In hopes of fondly growing great,
Let me, with rosy chaplets crown'd,
Stretch'd on the flow'r-enamel'd ground,
The vine's nectarious juices quaff,
Alternate sing and love and laugh.
For why, ye great ones, may not I
Flirt in my turn with Lady Di ?

Why not in *Blushing colours* clad,
Instead of fables dark and fad,
Adorn my *Name*, and hafte to
   prove
The matchlefs ardor of my *Love?*
With fuch a *Bedmate!* fuch a lafs!
Too foon the longeft night would
   pafs!

True as the *Needle* to the pole,
I'd ne'er forfake my loving foul:
One purfe, one *Bar*, one commonBox
Would well fupply all other locks.
Heedlefs of *Fame*, or envy's dart,
The *Plague* of many an honeft heart,
We'd fteal thro' life, ferene and gay,
Then fink into our native clay.

8. *Ode to Content*; by Mrs. M. Furnafs, *Heddon-on-the-Wall.*

Hail! peace-infpiring heav'nly queen,
Whofe charms outvie the rural fcene,
  Or morning's *Blushing* ray;
Defcend from regions far remov'd,
Where *Love*-creating joys are prov'd,
  And wifdom's child bears fway.

When founding *Names* thy worth
   proclaim,
Borne on pinions of fwift *Fame*,
  Soft flowing from the tongue;
The foul enwrap'd in tranquil mood,
Feels joy run thro' each *Bedmate's*
  And accents yet unfung. [blood,

Forthwith Apollo ftrikes his lyre;
The *Box* and *Bar*, with keen defire,
  Unite in harmony;
Which raife on *pinnions* thro' the
Imagination, fportive maid, [fhade,
  To courts above the fky.

There flowers fpontaneous ever
   fpring,
And vernal zephyrs balmy wing
  Enlivens ftill the hour;
No *Wat'ring-pan* is call'd in view,
Nor baleful *Plague*, with livid hue,
  Extends malignant power.

9. *Address to an Old Coat*; by Mr. Rob. Sanderfon, *Steeple Afton.*

Unplagu'd with life's unnumber'd
   ills,
With learned noftrums, potions, pills,
  By many dearly bought;
With joy I touch the lyre again,
And fing in linfey wolfey ftrain,
  Of thee, my old *drab* coat.

Winter, the favage, thrice has rag'd;
With fnow and rain thou haft engag'd;
  And firmly brav'd rough weather;
Now nibbled by that rat, old time,
(Such luck betides the weight of
   rhyme!)
  Thou fcarce canft hold together.

What then, tho' in this tatter'd ftate,
Thou haft but met the common fate
  That ev'ry coat attends;
Thy *Name*, thy praife fhall ne'er be
   pafs'd
Unfung, while fickle life fhall laft,
  And memory befriends.

For all th' attractive excellence
Of fparkling wit, and folid fenfe,
  We furely owe to thee;

Politenefs, humour, ev'ry grace
That 'corns the mind, and decks the
   face:
  This truth we daily fee.

But 'tis when in thy better days
Thou claim'ft a portion of our praife,
  And dealt thy bounties forth;
For fhould I give for fuch a coat
As thou art now, one fingle groat,
  'Tis more than thou art worth.

What mortal ever yet could find
A man of wit and fenfe who fhin'd,
  Equipt in flowing tatters?
See Rofcio hurries thro' the ftreets,
Derided, cuff'd by all he meets;
  For who the ragged flatters?

But Dulbert, drefs'd in fuperfine,
Has wit and fenfe almoft divine,
  He too has genuine humor:
Fame worfhips him with true devo-
   tion,
She *Loves* to dwell on ev'ry mo-
   tion,
  And fpread a flatt'ring rumor.

Full well I recollect the time,
When first I wore thee, in thy prime,
  My humor pleas'd the many;
I *Blush* to say how chang'd my tale,
That humor's grown quite flat and
  stale,
  Scarce worth a new-coin'd penny.

Obeisance then I never miss'd,
Off went the hat, with eager fist,
  Of *tailors*, coblers, bakers;

That cov'ring off they scorn to
  pull;
But keep it now glu'd to the skull,
  As if they'd all turn'd quakers.

All day could I thy praise prolong;
Let it suffice to end my song,
  With this assertion true,
That each idea, ev'ry thought,
Gains lustre from a handsome coat.
  Companion old, adieu.

10. *To Miss Eliza Fox*; *by Mr. The. R. Stuart.*

In a dirty, dull villa, scarce deserving the *Name*,   7
In an humble built *Box* I my residence hold;   5
Where I labor to live in the annals of *Fame*,   3
Not ambitious of pow'r, or o'er anxious for gold.

Each morn I inhale the fresh breeze from the hills,
As I trip with delight o'er the blossom-deck'd plain,
Or stray by the side of the crystalline rills,
That bound, by their course, my paternal domain.

In the heyday of youth, when the blood in full tide
Bids defiance to sorrow, and laughs at dull care;
Can gay six and twenty feel dormant to pride,
When applauded at once by the witty and fair.

No—I own it with pleasure, your praises can warm,
Bid fancy exulting sweep louder the lyre;
Once more, led by hope, grasp the magic-fraught charm,
And the muse of the grove to the laurel aspire.

Accept then, sweet maid, without *Blushes*, the lay,   2
In return for the favor by beauty bestow'd.
May misfortune's dark cloud ne'er o'ershadow your day,
Or the *Plagues* of the World place a *Bar* in your way!   4, 6
When your hand you resign to some high-favour'd youth,
May your highest-form'd wishes reality prove!
Hymen point, as the *Needle*, to honor and truth,   8
And no end, but with life, to the raptures of *Love*.   9

N.B. Enig. 1 is *Watering-pot*, and the prize *Bedfellow*.

11. *The Happy Marriage*; *by Mr. R. Walker, of Bywell.*

When Damon, fir'd with ardent *Love*,
Young Celia did his suit approve,
  She lik'd the shepher'd swain:
Without a *Blush* to him resign'd,
In *Nameless* raptures both were join'd
  In Hymen's silken chain.

Thrice happy they whom love unites,
In fond attachment and delights,
  Who feel the partial flame!
No mutual wrongs, no jealous ire,
No calumnies at all conspire,
  To blast their rising *Fame*.

With *Watering-pan* across the green,
Now Celia trips with graceful mien,
  To bleach the linen fair;
A *Box*, with *Needle*work employs
Those hours oft spent in empty toys,
  Beneath a woman's care.

No *Bar* obstructs their nuptial joys,
No jealousy their peace destroys,
  Or *Plagued* strife molest;
But down the stream of life they glide
While gentle breezes still the tide,
  And lull their cares to rest.

Other ingenious general answers to the Enigmas, beside those inserted in the Supplement, were given by the following ladies and gentlemen, viz. J. Ashcroft, J. Bayley, John Brooksbank, J. Cairns, J. Carwirken, Tho. Coulson, Tho. Coultherd, Sarah Cowen, Wm. Crois, A. Gibbs, Miss Green, J. H., Miss A. H—g—t, Jane Hales, J. Hatfield, T. Heynes, Jos. Hindson, Da. Lewis. A. Morris, Tho. Perrol, Da. Roharts, R. Robinson, Alex. Rowe, J. Rutherford, Wm. Saint, J. Savage, Theodosia, J. J. Thompson, W. Ward, Wm. Wilson, Eliz. Wright, &c.

ANSWERS *to the* REBUSES *and* CHARADES.

Rebuses.		Charades.	
Diary.	Sup.	Diary.	Sup.
1 Lincoln	1 Stone	1 Boatswain	1 Lighthouse
2 Smart	2 Milton	2 Damage	2 Courtship
3 Malice	3 Chat	3 Campbell	3 Warsaw
4 Prize	4 Clifton	4 Ribband	4 Chairman

1. *By Mr. W. Butterman, North Cave.*

Lincoln, Malice, Prize, and Smart,
  The rebuses I think impart ;

Boatswain, Damage, and Campbell,
  And Ribband the charades will tell.

2. *By Mr. Tho. Coulson, Rookhope.*

Silence, ye fair, while I declare
  Each rebus and charade ; [heart;
There's Lincoln, Smart, with all my
  The next on Malice made.

A Prize I see, a Boatswain free ;
  With Damage and Campbell ;
A Ribband rare adorns the fair ;
  So till next year farewell.

3. *The Frigate and Privateer ; by X. Dino.*

Ye fav'ring gales, your aid impart,
While Campbell, Lincoln, and friend
  Yon privateer attack : [Smart,
See how she dances on the tide,
With all the marks of Gallic pride,
  Her prize to carry back.

Let Britons o'er their foe prevail,
And Damage every Rib and tail,
  Their Malice to bring down : [not,
Come Boatswain, gunner, and what
Another thund'ring broadside shot,
  And she is all our own.

4. *By the Rev. Mr. Ewbank.*

Boatswain, Damage, Campbell, Ribband,
  Half my subject will explain ;

Lincoln, Smart, and Malice added,
  Surely I the Prize may gain.

5. *The Unfortunate Tar ; by Mr. John Filaes.*

Jack Campbell was as Smart a lad
  As Lincoln e'er could boast ;
And Boatswain of a ship he went,
  To cruise along the coast.

A Ribband and a kiss he gave
  His Poll, then bid adieu :
But oh, the Malice of a foe,
  He soon had cause to rue.

A Gallic frigate hove in sight,
  And made his ship a Prize ;
By which great Damage Jack sustain'd,
  And now in prison lies.

Where he, poor tar, I fear must be,
  Till this dread war is o'er ;
Soon may blest peace return again,
  And waft him to our shore.

6. *By Mr. A. Morris, Liverpool.*

Near Lincoln city,
Lives Nancy so pretty, [tend,
For whom Campbell and Smart do con-

No Malice has she,
From Damage she's free,
And on honour she much does depend.

But, alafs! a *Boatfwain*,
   Who no *Prize* did gain,
Stept in, the difpute to decide;

With *Ribbands* all white,
   And a ring that is bright,
Takes Nancy to be his dear bride.

7. By *Narciffa*.

Malice avoid, dear ladies, as you prize
Your peace, your comfort, or the
   heav'nly joys.   [way,
If, as you journey, *Lincoln's* in your
Pray call on *Campbell*, and on *Smart*,
   on *Gay*.

No *Boatfwain's* whiftle will affail
   your ear,   [cheer.
Nor *Damage* will enfue, but friendly
Deck'd with your *Ribbands* and your
   fans fo neat,   [fweet.
Their garden will afford a nofegay

8. By Mr. *Tho. Rimmer*, *Schoolmafter*.

Could I compofe like Mr. *Smart*,
Or *Campbell*; I with all my heart
On fubjects more fublime would
   write,
To pleafe a friend fome winter's
   night.

On *Dia's* page I would appear,
Solve all the myftic quibbles there.
Did *Prize* or *Damage* prove my ftrain,
Or *Lincoln*, *Ribband*, or *Boatfwain*,
Or *Malice*, I would clear the matter.
Believe me *Di*, I do not flatter.

9. By Mr. *Wm. Saint*, *Norwich*.

For once, dear ladies, let me try,
Charades and rebufes to 'fpy.
Thefe laft I fee, without difguife,
Are *Malice*, *Lincoln*, *Smart*, and *Prize*.

Damage, *Ribband*, with *Campbell* too,
Juft three charades will bring to view.
Hark! fure I hear the *Boatfwain's* call.
Adieu! fweet girls, I've told you all.

10. On Lady *Di*; by Mr. *Wm. Wells*; being the Remainder of his General Anfwer to the Enigmas, Rebufes, &c.

No *Malice* fhe to any bore,
   When fhe to *Lincoln* went:
A *Prize* fo *Smart* in drefs before,
   To there was never fent.

But hark! the *Boatfwain* fhouts avaft!
   Or we fhall *Damage* take;
Belay the bowlings, brace all faft,
   Awake, *Campbell*, awake.

The captain's lady by him lay,
   With *Ribband* round her head.
He calls the mate, and thus did fay,
   Why don't you quit your bed?

Jump up, and lafh the helm alee,
   And let the fhip lay to;
We're in great danger I can fee,
   And nothing you will do.

11. By Mr. *Joseph Wilfon*, of *Black Callerton*.

Lincoln, *Malice*, *Prize*, and *Smart*,
Every rebus will impart.

The *Boatfwain*, *Ribband*, and *Campbell*,
With *Damage*, will each charade tell.

Other ingenious anfwers to the Rebufes and Charades, befide thofe inferted in the Supplement, were alfo given by the following ladies and gentlemen, viz. J. Afhcroft, J. Bayley, J. Brookfbank, I. Brown, John Cairns, J. Carwithen, Tho. Coulfon, J. Cavill, Sarah Cowen, Wm. Crofs, R. Dutton, Jane Green, J. Hawkes, A. H--g--t, Jane Hales, Sam. Harvey, J. Hatfield, Tho. Hindmarfh, Jof. Hinafon, J. Horn, Rd. Humber, I. Kendray, Da. Lewis, T. Lindley, Wm. Newby, Tho. Perroll, J. Rimmer, Da. Reharts, R. Robinfon, Alex. Rowe, John Rutherford, J. Savage, Jo. Sh--w, Eliza Still, Theodofia, J. J. Thompfon, Tho. Thorpe, Virtet, T. W., W. Ward, T. Weedon, Wm. Wilfon, Eliz. Wright, &c.

ANSWERS *to the* QUERIES.

QUERY I. *anfwered by Mr. Alex. Row, Reginnis.*

When love is real and well founded, then abfence will doubtlefs increafe it. But if it be feeble and wavering, abfence will often extinguifh it; for, according to the old adage, " Out of fight, out of mind."

Mr. John Branfby fays—Abfence is found, for a fhort time, to increafe the flame of love. But if reafon can be allowed to exercife its part, and aid prudence in lengthening the continuance of that abfence, the force of love will be abated, and it will either fubfide into a rational and confiftent af-fection, or be entirely extinguifhed.

Mr. Thomas Crofby, of York, fays—That a long abfence has a tendency to diminifh love, rather than increafe it, is a pofition I think that cannot be controverted. Frefh amufements, frefh purfuits, and frefh objects, act upon the ficklenefs of the human mind, in fuch a manner as gradually to extinguifh the moft ardent love; while, on the contrary, a fhort abfence has not that power, or even to obliterate the leaft impreffion which love has made in the tender heart.

Mr. Ralph Dutton, of Kingfley, fays—The anfwer to this query depends on the degree of love. Where the degree is moderate, abfence may diminifh it; but when the paffion is deeply rooted in hearts of fenfibility, it will certainly increafe it; as the fame degree of wind which will blow out a candle, will caufe a large fire to burn with increafed fury.

Mr. J. Hatfield, of Mansfield, fays—That fhort abfence doubtlefs en-livens the paffion of love. A fagacious author (Lord Kaimes) fays, " Ob-ftacles to gratification never fail to augment and inflame a paffion." And another,

" All impediments in fancy's courfe
Are motives of more fancy."   SHAKSPEARE.

But in long abfence, love, like every other affection of the mind, pro-duced by habit, gradually will decay; though perhaps leaft with a party remaining where the tender connection was firft formed, and its growing fatisfactions moft fenfibly felt.

Mr. Jof. Hindfon, of Lincoln, fays—When once true love is implanted in the breaft, fcarcely any thing but death is able to eradicate it; and in that cafe I may venture to affert that abfence rather increafes than diminifhes love. But when only a flight affection, or a fudden guft of paffion has feized the breaft, the heart, ever prone to novelty, will, by time, abfence, and the fight of other objects, be diverted from the creature of its once efteem. So that in this cafe abfence diminifhes love.

QUERY II. *answered, by Mr. Tho. Coulson, Rookhope.*

Shrove Tuesday is always the day before Ashwednesday or first day in Lent, on which day persons formerly went to confession, during which time they abstained from eating of flesh. Some of the ancient fathers mention it as a practice of some standing. It was a custom among our ancestors to have both pancakes and collops on that day, or rather the collops on the Monday or day before, which in some parts is still called Collop Monday.

Mr. Ra. Dutton says---Shrove Tuesday, being the day immediately preceding Lent, it was employed by the ancient Christians in confessing their sins, thereby to qualify themselves for a more religious abstinence. In process of time this custom changed to that of mutual invitations, to take leave of flesh-meat, by introducing pancakes and the like; and the festival ended with various sports as at present.

Mr. Wm. Newby, of Barningham, resolves it thus from Hutchinson's History of Northumberland:—" This seems to be derived from a custom in the refectory of religious houses, where the table was spread on this day for all pilgrims, travellers, and visitants. In Newcastle, Durham, and other places, the great bell of the church is tolled, the servants have holiday, and whoever partakes of the pancakes must fry them. In Mr. Brand's Appendix to Bourne's Popular Antiquities, he says, a kind of pancake-feast preceding Lent was used in the Greek church, from whence probably we have borrowed it."

QUERY III. *answered.*

On the subject of this query, like most others, there are different opinions, a specimen of which may be as follows:

Mr. Tho. Crosby, of York, says---Hope is much more conducive to happiness than enjoyment, as may be easily proved. " It is with life as with the golden bird sent by the fairies to a young princess: the bird settled at thirty paces from her; she goes to catch it, advances softly, is ready to seize it; the bird flies thirty paces further; she passes several months in the pursuit, and is happy. If the bird had suffered itself to be taken at first, the princess would have put it in a cage, and after a week's enjoyment would have been tired of it. This is that bird of happiness which we incessantly pursue; we catch it not, and are happy in the present, because we are secure from disgust."

The Rev. Mr. Furnass says---This query is very evident, and every one can answer for this truth—the enjoyment of any thing falls far short of the expectation; but " Hope is the foundation of our rejoicing."

Mr. *Wm. Marrat, of Lincoln,* says---Enjoyment is certainly the moft productive of human happinefs: for as all our happinefs depends on fomething which gives us pleafure when we have it in poffeffion, it is the enjoyment of it alone that can make us happy. Befides, hope only leaves the mind in fufpenfe, while enjoyment is the completion of all our defires.

Mr. *T. Turner* says---The enjoyment of any pleafure, which comes under the denomination of that of human, very rarely affords us a degree of happinefs equal to that which hope leads us to form of it while we have it to expect. So that hope affords us a degree of happinefs, which enjoyment, by undeceiving us, diminifhes or takes away. Therefore hope is truly faid to be the more conducive to human happinefs.

Query IV. *anfwered by Mr. John Branfby, of Ipfwich.*

In confequence of the eccentricity of the earth's orbit, the diftance of the fun from the earth varies, as does therefore its apparent diameter; and in confequence of the eccentricity of the moon's orbit, her apparent diameter alfo varies; and as this latter eccentricity is proportionably greater than the former, the moon's apparent diameter varies more than the fun's does. When the moon is in perigee, her diameter is greater than the fun's, efpecially if the earth be at the fame time in its aphelion; and, on the contrary, when the moon is in apogee, and the earth in perihelion, the moon's diameter appears lefs than the fun's. Hence it happens that, if there be a central eclipfe of the fun when earth and moon are in or near the former fituations, the eclipfe is total; but if the central eclipfe happen when they are in or near the latter fituations, the eclipfe is annular, a bright circle near the fun's limb being vifible, becaufe then his apparent difk exceeds that of the moon.

Mifs *Sarah Cowen* says—In Dr. Hutton's Dict. p. 376, vol. 1, according to Kepler the greateft apparent diameter of the fun is 31′ 4″, and the leaft diameter of the moon is 30′; confequently the fun's diameter may exceed that of the moon's by 1′ 4″.

New Enigmas.

I. Enigma (812), *by Mr. Wm. Anderson, Crutched Friars.*

'When man was firft created on this earth,
I from that early period took my birth.
No noxious deeds did then my ftate moleft,
While inward purity adorn'd each breaft.
But foon, alas! degenerate I became,
And on a woman then was laid the blame:

A frail excuse, too much practis'd in life;
Man often errs, and then he blames his wife.
In days of yore I frequently was found
Among the rich; my fame did then resound:
Now disregarded, shameful to relate,
Find more enjoyment in a lower state:
No pride, no riches there my mind beguile;
Serene I sit, and bid the heart to smile.
Where I reside, I do the bosom warm,
And give domestic life its sweetest charm;
Dispel internal troubles from the breast,
And soothe each sorrow when the mind's distrest.
But soon the charms of youth and love decay,
If you forsake me, and begin to stray.
Ye mystic bards who shine in lists of fame,
Record my worth, and emulate my name.

II. ENIGMA (813), *by Mr. John Bayley, Schoolmaster.*

Ye ladies fair, say what am I,
Distinguish'd by my crimson dye.
Most likely 'tis I took my rise
From mother Eve in Paradise.
She, tasting the forbidden tree, [me.
Gave birth to Shame, and Shame bore
Yet I from diff'rent causes rise,
Seize innocence by quick surprize,
And tender souls I oft unhinge,
But shameless wretches seldom tinge.

The pink, the tulip, nor the rose,
Can a more lovely hue disclose.
The fairest nymph upon the plain
To put me on need not disdain.
The bards in metaphors adorn
With me, the rose and rising morn.
I glowing rise, but short's my stay,
For instantly I fade away.
Now, fairest ladies, I suppose [close.
You'll from these hints my name dis-

III. ENIGMA (814), *by Mr. W. Clarke, of Cams Hall.*

Ye sprightly fair, whose ready wit
Such latent mysteries can hit,
As clearly prove your noted fame,
Deserving plaudits for the same,
For one that ever waits on you;
      *   *   *
In whose devotions I have part,
And help to form aright the heart;
Your counsels keep, nor ever stray
Or deviate from the virtuous way!
But strife and discord wisely shun;
By such, whole kingdoms are undone.
I constantly attend the court,
But ne'er with citizens resort.
And in the country I appear
Ev'ry season of the year.

You'll see me now within an hour,
Attending at your parlour door;
Nor is there need to bid me come,
Before I'm with you in the room,
There so convenient in my station,
You use me as you find occasion.
Nay 'tis confess'd without my aid,
This pond'rous earth had ne'er been
Yet after all my boasted worth, [made.
'Twas base deceit that bro't me forth;
And I in Grubstreet have been found,
Where ambidext'rous frauds abound.
But for all this, you will confess,
I was esteemed ne'er the less.
Hence I a mystery remain,
For you, dear ladies, to explain.

IV. ENIGMA (815), by Mr. Tho. Coulson, of Rookhope.

Ye lovely fair, whose piercing wit
On dark enigmas often hit,
　　Awhile I pray attend,
To one whose sweetly pleasing sway
Your willing hearts with joy obey,
　　And is your only friend.

When pangs of sorrow rend your
　　breast,　　　　　　　[rest,
And long have robb'd your soul of
　　On me you still rely;
For heav'n in mercy sent me here,
And bade me wipe the bitter tear
　　That streams from sorrow's eye.

When you're by tyrant pow'r opprest,
Friendless, afflicted, and distrest,
　　By me you're taught to rise;
And conscious of your heav'nly birth,
To scorn the narrow bounds of earth,
　　And claim your kindred skies.

'Tis mine to pierce the dismal gloom,
Where sorrow weeps o'er friendship's
And hail that happy shore, [tomb,

Where pleasure shall for ever reign,
Where virtuous love unites again,
　　And friends shall part no more.

Midst tort'ring racks and scorching
　　fires,
The hero whom my voice inspires,
　　In conscious virtue brave,
Triumphantly resigns his breath,
And plucks the sting from vanquish'd
　　The victory from the grave. [death,

If yet, ye lovely fair, in vain
You study for my hidden name,
　　Another hint I'll give;
To heav'n I lead, but, ladies, there
I cannot be; earth is my sphere,
　　And often you deceive.

Then may my kind, my gentle pow'r
Sustain you in that dreadful hour,
　　When Nature shrinks aghast; [close,
When death's cold hand these eyes shall
And your long pilgrimage of woes
　　Shall have an end at last.

V. ENIGMA (816), by Mr. John Fildes, Liverpool.

Dear ladies, let me now prevail
Upon you, just to hear my tale:
And when my name you have found
　　out,
Which soon you will, there is no doubt,
You'll own you would not wish to see
Your lovely heads bereft of me;
For should that happen, I protest,
Your beaux of you would make a
　　jest.
The good man claims me for a friend,
Tho' I on thieves and rogues attend;
And oft, like them, it is my doom,
Within the prison's dismal gloom,

To be in custody confin'd;
But I'm so harden'd I ne'er mind.
The sportsman with his dog and gun,
Without me would have little fun.
I inland navigation aid,
And am to guard you often made.
I've for religion no respect;
Yet constantly the church protect.
I much addicted am to fight,
And in hot wars take such delight,
I to the field of battle go,
And boldly face each haughty foe;
And very active in a duel,
But be assur'd I'm no ways cruel.

VI. ENIGMA (817), by I. H. Cantabrigiensis, answering the Enigmas of last Year.

　　Like Apollo's fam'd Sybil, who from her dark cell,
　　In terms, tho' ambiguous, the fortune could tell
　　Of princes and states; so I, with more ease,
　　Give out my responses on Sybilline leaves:

Or rather require responses from those
Who turn o'er the leaves these responses compose.
Yet, not like the Sybil on tripod I sit;
A throne, or a chair, or a stool will me fit:
Nor need you libations to pour on the ground
From the patera ancient while I'm to be found.
For sometimes a *Waterpot*'s shape I assume,
Nor *Blush* for my *Fame*, any more than at Rome
Did the consul when call'd to the state from the plough:
A *Plague* then was power, whatever 'tis now.
To unlock all my treasures, no false *Key* you need:
To my *Name* point the *Needle*, and oft you'll succeed.
And sometimes, tho' coy, a *Bedfellow* I *Love*;
Yet, not fixt to one, among many I rove.
Like nature I'm various, curious as art;
And science to me all her charms can impart.
Nay, the world's all my own—every object is mine;
I can twinkle with stars—with the sun I can shine;
Can change with the moon, or can change with the fair;
And, tho' fixt as the poles, I am free as the air:
And, like Proteus of old, at my pleasure, with ease,
I can vary my form, and appear what I please.
But one short word more, and then ladies farewel!
Your Di'ry is often my Sybilline cell.

VII. Enigma (818), *by Mr. Richard Hallilay, London.*

Before Rome's city e'er was built,
Or ancient Greece was in great pow'r,
Was I in being, giving birth
    To male and female ev'ry hour.

Upon my travels long I've been,
Without once stopping day or
    night;
And were I but to rest awhile,
I sorely would mankind affright.

When lord imperious does command,
With threat'ning speech, in anger
    made,
His servant man to make more speed,
The man oft asks for me to aid.

Both sick and lame I often kill,
Yet often too I both do cure,
And shall continue so to do,
As long as doth the world endure.

VIII. Enigma (819), *by Mr. H. Mawprè.*

Good ladies awhile your attention bestow,
And bear my surprising relation;
(My name I conceal for your answers to shew)
'Tis vain, let me tell you, to search high or low,
I'm not to be found in the nation.

In Egypt I dwell, at the end of a cave,
In solitude, silence, and pleasure;
I'm known to the miser, I wait on the knave,
And (tho' it may seem rather strange of a slave)
I constantly add to his treasure.

Invisible always, yet still may be seen
In tears, and partaking of trouble;
And tho' I've the honour to visit the queen,
So long in distresses severe have I been,
My body is nearly bent double.

When Jupiter tipples his nectar divine,
And Momus increases the mirth,
 I go without bidding, and finish their wine,
For sure in the heavens a place should be mine,
Who dares to stand chief of the earth.

But why should I hope, in a mystical guise,
To secrete myself from your view,
Since thro' the whole year I am seen in the skies,
And always with thunder and tempests arise,
Or lie in the midst of the dew.

IX. Enigma (820), *by Miss Maria Middleton, of Eden.*

A hero, if that brilliant name
Actions of worth and merit claim,
 Joins th' enigmatic list;
No upstart he, of modern date;
With man he did originate,
 With him doth still exist.

Nay after him I still shall be,
Such is my durability,
 Not Death himself subdues me;
For where old John, at toll of bell,
Repairs to form the silent cell,
 With sacred dread he views me.

I'm not to lordly man confin'd—
Beast, fishes, birds of ev'ry kind,
 I equally befriend;
'Tis I that strength and beauty give;
To bid sweet health and vigour live,
 Is my design and end.

Yet other feats I can reveal;
Let modern warriors hear the tale,
 And cowards spurn dismay;
For Scripture doth the fact record,
How I without or staff or sword,
 A thousand men did slay!

If more you'd learn concerning me,
Take off my head—a thing you'll see,
 Both singular and odd;
Which, if its tail away you take,
Will, so revers'd, no scruple make,
 Ev'n to deny a God!

Another hint, ladies, to you,
'Tis wond'rous strange, but really true,
 From me you did descend!
And still your constant friend I prove,
By me you live, by me you move,
 I cause the knee to bend.

X. *Or* Prize Enigma (821), *by Mr. T. R. Smart.*

Inspir'd as erst to win a partial smile,
From you the boast and glory of the isle,
Ye matchless fair, once more the youthful muse,
With ardor warm, her much lov'd task pursues.
O might her pow'r but equal her desire,
And fervid genius wake the willing lyre!
With Shenstone's beauties should the image glow,
Nor Pope's sweet numbers more harmonious flow.

Fruitless the wish! stern-fate the boon withstands,
And gives the palm to more deserving hands :
Yet may the wish supply where merits fail ;
Hope whispers sweet, and bids pursue the tale.
  In dark eternity, ere time begun
To count his progress by an annual sun,
Long ere th' Almighty fram'd this grand design,
In heav'ns bright realms I boast my birth divine,
With num'rous myriads of seraphic race,
Spann'd countless ages, and a boundless space ;
When at his last best work th' ethereal ray
Stamp'd his own image on the moulding clay,
Me, as high boon, the deity bedow'd,
Unequall'd gift, and worthy of a God.
Thence thro' the ages of revolving time,
In every country, and in every clime,
Where'er th' effulgent sun's broad eye surveys,
And cheers the nations with alternate rays,
With sons from sires successively take place,
In all the branches of the earth-born race,
But not alike in all my pow'r is shewn,
Not with like splendor do I grace my throne ;
In some, my heav'nly flame so nearly out,
That my existence almost is a doubt ;
In others, all my innate beauties show,
My richest tints in vivid colours glow.
With you, fair lovers of the tuneful art,
Gay I appear, and act a matchless part.
Led on by me, o'er Greenland's dreary coast,
Where nature chills with one eternal frost,
Rude Boreas with unceasing fury roars,
And icy mountains block her gloomy shores :
Or ere Italia's soft enchanting plains,
Where summer with unrivall'd splendor reigns,
Where cloudless skies and brighter suns appear,
Thro' each unvarying season of the year :
In torrid climes, where surgy Neptune laves
A coast of horrors, and a land of slaves,
The Negro see, in Europe's crimes unvers'd,
Torne from his hut by bloody hands accurs'd,
While I to madness fire his bursting brain,
Paint the lost pleasures of his native plain,
In magic vision to his mind and eyes
Wife, parent, children's heart-piercing cries !
See, nature fails—his languid eye-lids close,
He raves for death to end his num'rous woes !
  Alike in joy as grief I take a part,
And give delight, as well as pain the heart :
My merit such, did I my aid withhold,
Not all conjoin'd could this slight veil unfold.
Ye beauteous rivals for Diarian fame,
Call forth my latent pow'rs, and show my name.

NEW REBUSES, CHARADES, and QUERIES.

I. REBUS, *by Mr. John Bayly, Schoolmaster, Middleton.*

What greatly contributes a man to keep warm,
And helps the French nation our trade much to harm,
Join a wicked old hag, with one letter left out;
Then the name of a town you'll find without doubt,
Where an author resides, of judgment profound,
Whose works to his honour and praise much redound.

II. REBUS, *by Mr. John Fildes, Schoolmaster, Liverpool.*

A lofty tower, built in vain,
He who was by his brother slain,
A part of life, in mirth oft spent,
He who was out of Sodom sent,
The fickle mother of mankind,
And what you in an egg may find;
Of these the initials join, and you
Will have a bard excell'd by few [light;
Whose works are read with great de-
Long may he to the Diary write!

III. REBUS, *by Mr. Tho. Hindmarsh, of Rusheymead.*

My name just consists of five letters you'll find;
Thro' me was entail'd a great ill on mankind:
My head separated, the rest will explain
An innocent martyr unrighteously slain;
One letter more cut off, and then you will see
An idol, to which thousands once bow'd the knee.

IV. REBUS, *by Mr. Tho. Rimmer, Schoolmaster, Standish.*

The beginning of March, and the middle of May,
One third of the noise of a raven or crow,
When join'd to one half of the end when you pray,
Will name a sweet fair one, whom Diary can show.

I. CHARADE, *by Mr. W. Clark, Cam's Hall.*

Productive first of various good,
For man and beast supplying food.
My next, th' effect of cold or fear,
Or from the feather'd tribe we hear.
My whole strikes terror to the heart,
And awful rends my first apart.

II. CHARADE, *by Mr. Tho. R. Smart.*

Thro'out creation's ample space,
Earth, water, fire, and air,
Whate'er the mind's vast eye surveys,
My first implies a share.

My next, an atom if you please,
The smallest of the small,

Yet, vast as fancy, by degrees,
Describes and covers all.

My whole excites your smiles and
Can please you, and annoy; [tears,
The cause of all your hopes and fears,
The source of grief and joy.

III. Charade, *by Mr. John Smith, Alton Park.*

Brave conqu'rors in my first, of old,   The lady who looks wan thro' years
    Were drawn from battle home ;   Whose face no redness shows ;
Out of my second, silver, gold,   By using of my whole appears
    And copper too do come.   As fresh as any rose.

IV. Charade, *by Mr. Tho. Woolston, Atterbury.*

On yon steep cliff, which shades that dismall dell,
    My sportive first, behold undaunted play ;
Lo in my next the loves for ever dwell,
    And hand in hand with Delia see them stray.

My whole, defenders of the charming fair,
    Familiar oft enjoy her warm embrace.
Might love-sick Strephon such dear favours share,
    He then would envy none of human race.

I. Query, *by Mr. John Brooksbank.*

Required the origin and true meaning of the old adage " John Bull."

II. Query, *by Mr. Ra. Dutton.*

Whether are early or late marriages most conducive to human happiness?

III. Query, *by Mr. T. Hornby.*

What is the reason that the quantity of rain, caught in a rain-gage, is always greater at the bottom of a hill or building, than at the top of them?

IV. Query, *by Jacobus, of Norwich.*

Hark, the sound of yonder bells   Now it rises, sinks, and swells ;
Trembles in the list'ning ear :   The cause dear ladies make appear.

MATHEMATICAL QUESTIONS ANSWERED.

I. QUESTION (1029), *answered by Mr Wm. Davis, Schoolmaster, of Crowan.*

Put $x =$ the greater number, and $y =$ the less. Then $xy = x^2 - y^2$ and $xy = x^3 \div y^3$, or $x^2 = y^4$, or $x = y^2$; then by substitution, &c. we have $y^2 - y = 1$. By completing the square, &c, we find $y = \frac{1}{2} + \sqrt{1\frac{1}{4}} = 1.61803$. Conseq. $x = 2.61803$.

The Same, by Mr John Eadon, Junr. Sheffield.

Let $x =$ the greater, and $y =$ the less number. Then, by the question $xy = x^2 - y^2$, and $xy = x^3 \div y^3$; therefore $y^4 x = x^3$, and $y^4 = x^2$, and $y^2 = x$. Put y^2 for x in the first equation, and we get $y^3 = y^4 - y^2$, or $y^2 - y = 1$. Hence $y = \frac{1}{2} + \frac{1}{2}\sqrt{5}$, and then $x = y^2 = 1\frac{1}{2} + \frac{1}{2}\sqrt{5}$, which are the two numbers sought.

For proof: $xy = 2 + \sqrt{5}$, and $x^2 - y^2 = 2 + \sqrt{5}$, and $x^3 \div y^3 = 2 + \sqrt{5}$.

The same, by Mr John Ramsay, London.

Suppose x the greater number, and y the less. Per quest. $xy = x^2 - y^2 = x^3 \div y^3$. By equating the two first quantities is got $x = \frac{1}{2}y \times \overline{1 \pm \sqrt{5}}$, and by equating the first and third $x = y^2$; hence $y = \frac{1}{2} \pm \frac{1}{2}\sqrt{5} = 1.618$ &c., or $-\,.618$ &c.; and $x = y^2 = \frac{1}{2} \pm \frac{1}{2}\sqrt{5} = 2.618$ &c.; or $.382$ &c.

Answers to this question were also given by Messrs. James Adams, Geo. Barret, Wm. Baylis, R. Bennet, John Blackwell, John Bransby, Enzor Brown, Wm. Burdon, Colin Campbell, John Cavill, John Coultherd, Tho. Coultherd, Sarah Cowen, John Craggs, Rev. J. Ewbank, J. Forest, Wm. Eaton, jun. Rev. L. Evans, Wm. Francis, jun. Rev. J. Furnass, J. Gee, Jos. Gittins, Ed. Grace, J. Harris, J. Hartley, John Hawkes, Wm. Haycock, jun. G. Henderson, Da. Henry, T. Hewitt, T. Hickman, W. Hostman, Hen. Hunter, Wm. Kilburn, Rob. Langdon, J. M. Lockwood, Wm. Marrat, Tho. Milner, Jos. Moulsdale, Ja. Mulcaster, Wm. Newby, R. Oliver, Tho. Perroll, Cha. Pritty, Ben. Richardson, Da. Roharts, Wm. Robinson, Aug. Roullier, Alex. Rowe, John Rutherford, John Ryley, Rev. Tho. Sewer, Tho. Squire, Edw. Smith, John Surtees, J. W. Tapp, Tho. Thompson, Ja. Thoubren, Tho. Towan, W. Truman, T. Turner, Wm. Virgo, Virtet, Rob. Wallace, Geo. Walton, Jon. Walton, Rob. Wilkinson, Jos. Wilson, Tho. J. Wood, Tho. Woolston, Eliz. Wright, Wm. Wright, &c.

C   II. QUESTION

II. QUESTION (1030), *answered by Mr Tho. Coultherd, Frosterly*.

Let C E be drawn, and produce C A to F, letting fall the perp. E F. Then $AF = \overline{BE^2 - BA^2 - AE^2}$ $\div 2AB = 1.7727$, and $\sqrt{AE^2 - AF^2} =$ $\sqrt{EF^2} = 17.9125$; also $\sqrt{CF^2 + EF^2} = CE =$ 24.5394 and $\frac{1}{2}AC \times FE = 134.3437$ the area of the triangle A C E. Again, in the triangle C D E, having the three sides given, by a like procefs is easily found, the perp. $GE = 15.469589$; and thence $\frac{1}{2}CD \times EG = 92.8175$, the area: Confeq. the fum of thefe two areas gives 227.1612 fquare chains, or 22 Ac. 2 R. $34\frac{1}{2}$ P. for the area required.
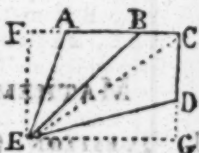
The fame, by Mr J. Gee, Elfwick, near Newcaftle.

In the triangle A B E, the three fides are given, to find the angle $A = 95° 39'$. Hence, if the diagonal C E be drawn, we fhall have two fides and the included angle of the triangle A C E, to find the faid diagonal = 24.539 chains. Then in each of the triangles A C E, D C E, the three fides are known, whence the fum of their areas is eafily found = 22 Ac. 2 R. 35 P. = the content required.

The fame, by Mr Rd. Oliver, Affiftant to the Rev. Mr. Cufham, Sutton, near Mansfield.

In the triangle A B E, all the three fides are given, to find the angle $ABE = 54° 30'$, the fupplement of which is $125° 30' =$ the angle E B C. — If C E be drawn, we then have the fides E B, B C, and the included angle, whence C E is eafily found = 24.5. Hence we have the fides of all the triangles E A B, E B C, E C D, from which (by rule 3 pa. 97 Hutton's large Menfur. 2d edit. or by rule 2 pa. 96 of his compendious Meafurer, their areas may be found, the fum of which comes out 22 Ac. 3 R. nearly.

Anfwers to this queftion were alfo given by Meffrs. Adams, Baylis, Bennet, Blackwell, Boulby, Branfby, Brown, Burdon, Campbell, Cavill, Coulfon, Coultherd, Cowen, Craggs, Dino, Dover, Eaden, Eaton, Evans, Ewbank, Foreft, Francis, Furnafs, Gillins, Grace, Harris, Hartley, Hawker, Haycock, Henderfon, Henry, Hewitt, Hickman, Hoftman, Jackfon, Langdon, Latey, Laycock, Lockman, Marrat, Milner, Moulfdale, Malcafter, Newby, Penglafe, Perroll, Pritty, Ramfay, Refifhir, Richardfon, Robarts, Robinfon, Roullier, Rowe, Rutherford, Ryley, Saint, Scurr, Sb——w, Smith, Squire, Surtees, Tapp, J. J. Thompfon, Thoubren, Towan, Turiner, Virgo, Virtet, Wallace, Walton, Waters, Wilfon, Wood, Woolfton, Wright, &c.

III. QUESTION

III. QUESTION (1031), *answered by Mr John Blackwell, Hungerford*.

Let ABCD represent the field; and continue the
lines AC, BD to the point E. Then, In the tri-
angle ABE, are given all the angles and the base or side
AB; from which are found the other sides and area, viz.
$AE = 1163.26$, $BE = 806.8717$, area of ABE $=$
469157; from this taking away the given area of the
field, leaves 194157 the area of the triangle CDE.
But, as similar triangles have their like sides proportional to the square
roots of their areas, we have, as $\sqrt{ABE} : \sqrt{CDE} ::$

$$AB : CD = 921.238$$
$$AE : CE = 414.928$$
$$BE : DE = 287.806$$

Then $AE + BE - CE - DE = AC + BD = 702.734$, which added to $AB + CD$,
gives 3056 links $= 122.24$ rods, amounting to
$3l. 1s. 1\frac{1}{4}d.$

The same, by Mr Green, Academy, Deptford.

Make the side AB, and the angles A and B, &c. as in the question,
producing the sides AC, BD to meet at E. In the triangle ABE are
given all the angles and the side AB, from which are found the side $AE =$
1163.259, $BE = 806.872$, and the area 469201.967; from which
taking the given area of the trapezoid $= 275000$ square links, there re-
mains the area of the triangle CDE $= 194231.967$. Then say, as tri-
angle ABE : triangle CDE :: $AB^2 : CD^2 = 848750.096$, its square
root is $921.276 =$ side CD. Hence, by similar triangles;

as $AB : CD :: AE : CE = 748.382$, and again,
as $AB : CD :: BE : DE = 519.094$; then
$AE - CE = AC = 414.877$, and $BE - DE = BD = 287.778$;
hence $AB + AC + CD + BD = 3055.931$ links $= 122.2372$ rods,
which at 6 pence each, come to $3l. 1s. 1\frac{1}{4}d.$ 69, the answer.

The same, by Mr Joseph Moulsdale, of Runcorn.

Put $AB = 1432$ links $= g$, the perp. CF or DG $= x$. fine A $= a$,
its co-fine $= b$, fine of B $= d$, its co-fine $= e$, and the given area $=$
275000 square links $= G$. Then by trig.

$AF = \frac{b}{a}x$, $BG = \frac{e}{d}x$, and $FG = CD = g - 2mx$ (putting $\frac{b}{a} +$

$\frac{e}{d} = 2m$); hence the area is $\overline{g - mx} \times x = G$; this quadrantic gives x
$= 233.7$ links. Hence the sides are AC $= 415$, CD $= 921.2$, BD $=$
287.8, their sum $= 3056$ chains, which at $2s.$ per chain is $3l. 1s. 1d.$
$1.76 q.$

Other ingenious answers were given by Messrs. Adams, Aspinall, Baylis,
Bennet, Boulby, Bransby, Brown, Burdon, Campbell, Cavill, Coben,
Coultherd, Cowen, Craggs, Crofs, Dino, Dowden, Eadon, Eaton, Evans,
Ewbank, Francis, Forest, Furnass, Gee, Gutins, Grace, Harris, Hartley,
Hawkins, Haycock, Henry, Hewitt, Hickman, Hofman, Jackson, Lang-

don, *Latey*, *Lockwood*, *Marrat*, *Milner*, *Mulcaster*, *Newby*, *Penglase*, *Perroll*, *Pritty*, *Ramsay*, *Robarts*, *Robinson*, *Roullier*, *Rowe*, *Rutherford*, *Ryley*, *Saint*, *Scurr*, *Sb———w*, *Smith*, *Squire*, *Surtees*, *Thoubren*, *Towan*, *Turner*, *Virgo*, *Virtet*, *Wallace*, *Walton*, *Waters*, *Wilkinson*, *Wilson*, *Woolston*, *Wright*, &c.

IV. QUESTION (1032), *answered by Mr J. Hartley, Auditor's Office.*

In the annexed figure, are given $AD = 8$, $CD = 20$, angle $FAB = 32°$, and the angle $CDF = 58°$ by the question. Then by trigonometry, $ED = 4·24$, $AE = EB = 6·78$, $CE = 24·24$, $CB = CA = 25·08$ inches; the angle $CAE = CBE = 81° 33'$, and the angle $AFB = 66° 30'$, the side $FB = 7·83$, and AF the transverse diameter $= 14·62$ inches. By mensuration, the solidity of the cone $= 1166·86$; then by sim. triangles, as $CB : BE :: CF : FG = 4·66$; whence $FH = 9·32$, and $\sqrt{HF \times AB} =$ the conjugate diam. of the ellipse $= 11·24 = KL$. Then, as radius $: AC :: $ fin. $\angle CAF : CI = 15·44$ the perp. Hence, $AF \times KL \times ·7854 \times \frac{1}{3}CI$ gives $663·388$ for the solidity of the oblique cone $CAFC$; $\frac{1}{6}$ of this is $110·56 =$ the solidity of the globe; conseq. its diameter will be $\sqrt[3]{110·56 \div ·5236} = 6$ inches nearly.
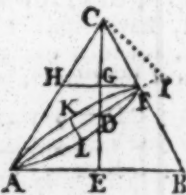
The same, by Mr John Surtees, of Alstone.

Let $n = AD = 8$ inches, $\frac{5}{2}n = CD = 20$, s and $c =$ fine and cofine of the angle D to radius 1, and $a = ·7854$. Then $AB = 2ns = D$, $CE = n \times \frac{5 + 4c}{2} = H$, and $HF = \frac{10sn}{5 + 2c} = d$. Hence (by Hutton's Mensur. pa. 173) the solidity of $ACF = \frac{1}{3} a H d \sqrt{D} d$; and therefore the diameter of the globe $= \sqrt[3]{\frac{H d \sqrt{D d}}{12}} = n \sqrt{\frac{5}{5 + 4c}} \times$

$\sqrt[3]{5 + 2c \times \frac{1}{6}s^2} = 6·02629$ inches, as required.

The same, by Mr Rob. Wilkinson, North Shields.

Let ABC represent the cone, and AF the dividing plane. Then $AD = 8$, $CD = 20$, and the angle $ADE = 58°$. Now radius $: AD ::$ fin. $\angle DAE : DE$, hence CE is known; radius $: AD ::$ cos. $\angle DAE : AE$, hence AB is known. Then $·2618 AB^2$. CE is the solidity of the whole cone. And, by Hutton's Mensur. cor. 4, pa. 228, 2d edit. the whole cone is to the top part CAF, as $CE^{\frac{3}{2}}$ to $CD^{\frac{3}{2}}$, which gives the solidity of the top part, which call a. Hence $\sqrt[3]{a} \div 3·1416$ is the diameter of the globe, $= 6$ inches nearly.

Ingenious answers were also given by Messrs. Adams, Aspinall, Baylis, Blackwell, Boulby, Bransby, Brown, Burden, Campbell, Cavill, Coultherd,

thberd, Cowen, Craggs, Dover, Eadon, Eaton, Evans, Ewbank, Francis, Foreſt, Furnaſs, Gee, Gittins, Harris, Hawkes, Haycock, Henry, Hewitt, Hickman, Hoſtman, Hunter, Kilburn, Langdon, Marrat, Milner, Moulſdale, Mulcaſter, Newby, Penglaſe, Perroll, Pritty, Ramſay, Robarts, Robinſon, Roullier, Rowe, Rutherford, Ryley, Scurr, Sh——w, Smith, Squire, Thoubren, Towan, Turner, Virgo, Wallace, Walton, Wilſon, Wood, Wright, &c.

V. QUESTION (1033), anſwered by Mr John Coultherd, Froſterly.

By ſimilar ſolids, as $\sqrt{7^2 + 5^2 + 7 \times 5} \times \cdot 2618 : \sqrt{\dfrac{8 \cdot 67 \times 1728}{21}}$

:: 7 : 35 :: 5 : 25, ſo that 35 and 25 are the top and bottom diameters of the fruſtum.— Again, if d denote the diameter of the globe, then $3 \cdot 1416 \, d^2$ is its ſuperficies, and $3 \cdot 1416 \, d^2 \times \frac{1}{6} d$ is its ſolidity; therefore $3 \cdot 14 \cdot 6 \, d^2 \times 2\frac{1}{2} = 3 \cdot 1416 \, d^2 \times \frac{1}{6} d$, or $2\frac{1}{2} = \frac{1}{6} d$, and $d = 2\frac{1}{2} \times 6 = 15$ the globe's diameter, and conſeq. its ſolid content $= 1767 \cdot 146$. Alſo, by ſimilar triangles, as $CG : CI :: AB - CD : EF - CD$, that is, as $21 : 15 :: 35 - 25 : 7\frac{1}{7}$; to this adding CD, gives $EF = 32\frac{1}{7}$ the diameter at the ſurface of the wine. Then the ſolidity of the part $CEFD$ is found $= 9667 \cdot 209$; from which taking the content of the globe $1767 \cdot 146$, leaves the quantity of the wine $= 7900 \cdot 063$ cubic inches, or $34 \cdot 2$ wine gallons, as required.

The ſame, by Mr Da. Robarts, of St. Columb.

Put $7x = AB$, $5x = CD$, $a = 21 = CG$, and $b = \cdot 2618$. Then $49 x^2 + 25 x^2 + 35 x^2 \times ab = 8 \cdot 67$ feet $= 14981 \cdot 76$ cubic inches; which equation gives $x = 5$, and hence the diameters are 35 and 25.— Now call the diameter of the globe d. Then is $2 b d^3$ the ſolidity, and $12 b d^2$ the ſurface, therefore $2 b d^3 = 2\frac{1}{2} \times 12 b d^2$, and $d = 15 = CI$ or DK. Again, by ſim. triangles, as $CG : AG :: CI : EI = 3\frac{4}{7}$; hence

$EF = 32\frac{1}{7}$, and the content of $CEFD = 9667 \cdot 9316$,
from which take the globe's content $= 1767 \cdot 15$
leaves the content of the wine $= 7899 \cdot 78$ inches,
or $34 \cdot 108$ gallons.

Other ingenious anſwers were alſo given by Meſſrs. Adams, Baylis, Blackwell, Branſby, Brown, Burdon, Campbell, Carvill, Cotes, Coultherd, Cowen, Craggs, Dno, Dover, Dryden, Eadon, Eaton, Evans, Ewbank, Francis, Foreſt, Furnaſs, Garſide, Gee, Gittings, Harris, Hartley, Hawkes, Haycock, Henry, Hewitt, Hickman, Hoſtman, Hunter, Kilburn, Laycock, Lockwood, Marrat, Milner, Moulſdale, Mulcaſter, Newby, Penglaſe, Perroll, Pritty, Ramſay, Richardſon, Robinſon, Roullier, Rutherford, Ryley, Scurr, Sh——w, Smith, Squire, Surtees, Taylor, Thoubren, Towan, Turner, Virgo, Wallace, Walton, Wilkinſon, Wilſon, Wood, Wright, &c.

VI. QUESTION (1034), *answered by Mr Wm. Baylis, Coventry.*

By Euclid vi. 3, the fides are proportional to the fegments of the bafe made by the line bifecting the vertical angle; that is, $5 : 4 :: AB : BC :: AD : DC$. Now there are given $aB = 5$, $Bc = 4$, and $\angle aBc = 60°$, to find the $\angle a = \angle A = 49° 6' 24''$; hence $\angle C = 70° 53' 36''$. Then, in the triangle ABD; are given all the angles and the fide $BD = 16$, to find $AB = 20.7846$, and $AD = 10.5830$. And in the triangle BCD, are given all the angles and fide BD, to find $BC = 16.6277$, and $DC = 8.4664$. Hence $AC = 19.0494$, $BE = 13.7117$, and area $= 149.647$.

The fame by Mr. Wm. Burdon, of Acafter Malbis.

CONSTR. Make the angle $ABC = 60°$, and take $aB : Bc :: 5 : 4$ the given ratio of the fegments of the bafe. Bifect the angle B with the line Bd, which produce till $BD = 16$, the given length; then draw ABC parallel to adc, fo fhall ABC be the triangle required.

CALCUL. In the triangle aBc, are given the two fides aB, Bc, and the included angle B, to find the $\angle a = 49° 6' 24'' = \angle A$; hence $\angle c = 70° 53' 36'' = \angle C$. Then in the triangle ABD, are given all the angles and the fide BD, to find $AB = 20.7845$, and $AD = 10.583$. In like manner $BC = 16.6277$, and $DC = 8.4664$. Hence $AC = 19.0404$, and the area of the triangle ABC $= 149.6488$.

Ingenious folutions were alfo given to this queftion by Meffrs. Adams, Bengal officer, Blackwell, Branfby, Brown, Campbell, Cavill, Coultherd, Cowen, Craggs, Dino, Dover, Dowden, Eadon, Eaton, Evans, Ewbank, Foreft, Furnafs, Gee, Gittins, Harris, Hartly, Hawkes, Haycock, Henry, Hewitt, Hunter, Jackfon, Langdon, Latey, Lockwood, Milner, Moulfdale, Mulcafter, Newby, Penglafe, Perroll, Pritty, Ramfay, Rimmer, Robarts, Robinfon, Roullier, Rowe, Rutherford, Saint, Scurr, Smith, Sparrow, Squire, Surtees, Thoubren, Towan, Truman, Turner, Virgo, Wallace, Walton, Wilkinfon, Wilfon, Wood, Wright, &c.

VII. QUESTION (1035), *anfwered by Mr James Adams.*

At page 187 of Crakelt's tranflation of Mauduit's Trigon. it is, as tang. half the depreffion of the crepufcular circle below the horizon, is to radius, fo is the fine of the declination, to the fine of the latitude, of a denomination contrary to the declination. Hence the required lat. is $56° 37'$ north $= NP$. Then $ZP = 33° 23'$; there is alfo given the fun's decl. $= 7° 36'$ fouth, his femidiam. $= 16' 6''$, horizontal refraction $= 33'$, and his horizontal parallax $= 9''$; from hence is found $PS = P\odot = 97° 36'$ the polar diftance. Alfo,
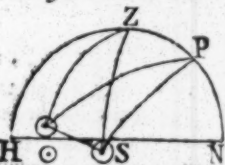
$90°$	$0'$	$0''$				$90°$	$0'$	$0''$
$+$	16	6	-	fun's femidiameter	-	$-$	16	6
$+$	0	9	-	horizontal parallax	-	$+$	0	9
$-$	33	0	-	horizontal refraction	-	$-$	33	0
89	43	15	$= Z$	zenith dift. of fun's centre	$Z\odot =$	89	11	3

Then,

Then, in the triangle Z P S, there are given the three fides, to find the angle Z P S $= 78^\circ 25' 1''$. And, in the triangle Z P ⊙, are alfo given the three fides, to find the angle Z P ⊙ $= 77^\circ 30' 1''$. Their difference is angle ⊙ P S $= 55$, anfwering to 3 min. 40 fec. the time required.

Ingenious folutions to this queftion were alfo given by Meffrs. Baylis, Branf-by, Burdon, Campbell, Coultberd, Cowen, Dino, Eaton, Furnafs, Gee, Hawkes, Hartley, Henry, Hewitt, Middleton, Milner, Mouldale, Newby, Ramfay, Robarts, Roullier, Rowe, Rutherford, Ryley, Smith, Surtees, Thoubren, Virgo, Wallace, Wilkinfon, Wright, &c.

VIII. QUESTION (1036), *anfwered by Mr John Branfby, Ipfwich.*

Put x for the depth of rain in inches, a the area of the aperture, b the ounces in a cubic foot of water, and w the ounces of water in the gage. Then $a b x \div 1728 = w$; hence $x = 1728 w \div ab$. — Or, becaufe $b = 1000$ (fee Hutton's Conics, p. 138), $x = 1.728 w \div a$. In words, multiply the ounces of water caught, by 1.728, and divide the product by the area of the aperture, for the depth of water fallen.

The fame, by Mr John Craggs, of Hilton.

The quantity of rain that falls into any given veffel, muft evidently be as the area of the orthographic projection of the veffel's aperture on a plane at right angles to the falling rain. Now when the aperture is a circle, its projection is an ellipfis, having its tranfverfe axis equal to the diameter of the circle, and its conjugate is to the tranfverfe, as the cofine of the inclination of the falling rain is to radius. Put $w =$ weight of a cubic foot of water, $d =$ diameter of the veffel, $W =$ weight of water caught, $a = .7854$, $c =$ cos. of inclin. of the falling rain; then $W \div a d^2 w =$ depth of water in the veffel, alfo radius : d :: c : $cd =$ conj. axis, and $a c d^2 =$ area of the aperture; confeq. $W \div a c w d^2 =$ depth of water as required.

Anfwers to this queftion were alfo given by Meffrs. Adams, Campbell, John Coultberd, Cowen, Furnafs, Gough, Haycock, Milner, Mouldale, Newby, Pritty, Robarts, Roulier, Rowe, Rutherford, Ryley, Thoubren, Virgo, Wallace, Wright, &c.

IX. QUESTION (1037), *anfwered by Mr James Adams.*

Let A B C be any plane triangle, and C D the line bifecting the angle A C B. In C A take C E $=$ C B, and draw B E. Then is the angle A C D or B C D half the vertical angle, C B E the complement of the $\angle$ B C D $=$ half the fum of A and B the angles at the bafe, and the angle A B E, or compl. of $\angle$ D, is half the diff. of the angles A and B at the bafe. Now, by trigon. as A C + C B : A C — C B :: tang. C B E : tang. A B E :: cotang. B C D : cotang. D :: tang. D : tang. B C D, becaufe the tangents and cotangents of arcs are reciprocally pro-portional.
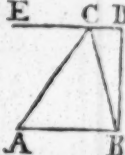
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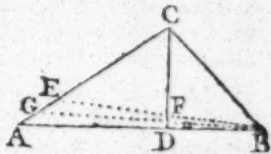
The same, by Mr Tho. Coultherd, Froſterly.

The demonſtration of this theorem is eaſily deduced from the 6th propos. in Emerſon's Trigon. For, if CE be taken = CB, and CFD be drawn perp. to BE; alſo FG parallel to AB. Then will the ∠ ECF = BCF, and GC = ¼ the ſum of AC and BC, alſo AG = ½ the diff. of AC and BC. Hence, by ſim. triangles, as CG : GA :: CF : FD :: tang. ∠ CBF : tang. ∠ DBF. But the tangent of any angle is reciprocally as the cotangent of the ſame angle; therefore as AC + CB : AC − CB :: cotang. DBF : cotang. CBF :: tang. ∠ D : tang. BCF, the whole of each of the firſt terms being in the ſame ratio as their halves.

Ingenious demonſtrations of this property were alſo given by Meſſrs. Branſhy, Brown, Burdon, Campbell, Cavill, Cowen, Craggs, Furnaſs, Gee, Gompertz, Gough, Harris, Hartley, Hawkes, Hunter, Latey, Middleton, Milner, Moulſdale, Newby, Nicholſon, Pritty, Robarts, Rowe, Rutherford, Ryley, Saint, Squire, Surtees, Thoubren, Virgo, Wallace, Wilſon, Wright, &c.

XI. QUESTION (1038), *anſwered by Mr Colin Campbell, of Kendal.*

Make BD equal and perp. to the given baſe AB, and draw the indefinite line DE parallel to it, then AC, BC being drawn to meet DE in C, ſo that AC : BC :: 3 : 2, by prop. 13, pa. 220, Simp. Geom. ABC will be the required triangle.

For, the area ½ AB.BD = ½ AB^2 : AB^2 :: 1 : 2. And, becauſe AC : BC :: 3 : 2, AC^2 : BC^2 :: 9 : 4, and AC^3 : BC^3 :: 27 : 8, and therefore AC^3 + BC^3 : AC^3 − BC^3 :: 35 : 19; hence $\frac{AC^2}{BC^2}$: $\frac{AC^3+BC^3}{AC^3-BC^3}$ :: $\frac{9}{4}$: $\frac{35}{19}$ :: 171 : 140.

The same, by Mr John Rutherford, Lancheſter School.

Divide the given baſe AB, ſo that AE be to EB as 3 to 2, and take ED, a fourth proportional to AE − EB, EB, and AE, by Lemma Prob. 21, pa. 334, Simpſon's Algebra. Raiſe the perp. DC = DE; ſo ſhall C be the vertex of the triangle ABC required.

For then AC : BC :: AE : EB :: 3 : 2, alſo AC^2 : BC^2 :: 9 : 4, and AC^3 + BC^3 : AC^3 − BC^3 :: 35 : 19; hence $\frac{9}{4}$: $\frac{35}{19}$ :: 171 : 140, the given ratio.

In this laſt manner is the conſtruction given by the Rev. J. Furnaſs, Mr. Glenie, Mr. Ryley, and Mr. T. J. Wood.

Other ingenious ſolutions were alſo given by Meſſrs. Adams, Baylis, Bengal officer, Coultherd, Cowen, Craggs, Eaton, Facer, Gee, Gough, Harris, Hawkes, Henry, Hornby, Hunter, Middleton, Moulſdale, Nicholſon, Pritty, Robarts, Rowe, Smith, Surtees, Thoubren, Wallace, Wright, &c.

XI. QUESTION

XI. Question (1039), *answered by Mr John Ramsay, London.*

Let T = tang. of 60° or 50°, the angles of eleva. at the first station;
t = tang. of 58° or 48° 10', the like angles at the 2d stat. to rad. 1.
x = dist. from 1st stat. to middle of either hill's base.

By trigon. as 1 : 200 :: fin. 10° : 34·73 = c, height of 2d stat.
above 1st; and as 1 : 200 :: cos. 10° : 196·96 = b, horiz. dist. of the
two stations. Again, as 1 : x :: T : Tx = perp. height of either hill
above 1st stat. and 1 : t :: $\sqrt{b^2 + x^2}$: $t\sqrt{b^2 + x^2}$ the same above
the 2d station. Therefore $Tx = c + t\sqrt{b^2 + x^2}$; which equation
reduced gives $x = \dfrac{Tc \pm t\sqrt{(T^2 - t^2) \times b^2 + c^2}}{T^2 - t^2}$ = 629·373 and
816·154 yards.

From these values of x the following are found:
Distance between the hills' tops = 1445·527 yards,
Perp. height of the hills, 1090·106 and 972·654 yards,
Dist. of their tops from 1st stat. 1269·71 and 1258·746,
Dist. of ditto from the 2d stat. 1258·806 and 1244·477.

The same, by Mr John Ryley, of Leeds.

As the declivity of the road, and the distance between the two stations
upon it, are given, the altitude of the second station above the first is found
by trigon. = 34·72964 yards, and their horizontal distance = 196·96154.
Now put a = 34·72964, b = 196·96154, c = cotang. of 60°, t = cotang.
of 58°, and x = the hill to these two angles. Then, by trigon. cx = the
distance from the first station to the middle of the hill's base, and t. $x - a$
= the distance from the second station; hence, by Eucl. i, 47, t^2.
$(x - a)^2 - c^2 x^2 = b^2$; from which quadratic x is found = 1090
yards.

In like manner, if x denote the height of the other hill, whose angles
of elevation are 50° and 48° 10'; c and t the cotangents of the said angles,
also a and b as above: then will x = 973 yards, the height of the lower
hill.

Now from what is here found, and the 47th of Eucl. i, the distance
between the summits is found, = 1445·7; the distance from the first
station to the top of the higher hill 1258·6, and to the top of the lower
1270; also from the second station to the top of the higher hill 1232·5,
and to the top of the lower 1259·3 yards.

*Ingenious solutions were also given to this question by Messrs. Adams,
Bayliss, Blackwell, Bransby, Campbell, Cowen, Craggs, Dover, Dowden,
Eaton, Evans, Furnass, Gee, Hartley, Henry, Hewitt, Hornby, Hunter,
Jackson, Marrat, Middleton, Milner, Mouldsdale, Perroll, Rees, Rouller,
Roberts, Robinson, Rowe, Rutherford, Smith, Surtees, Thoubren, Wallace,
Wright, &c.*

XII. Question

XII. QUESTION (1040), *answered by Mr John Bransby, Ipswich.*

From the given latitude, declination, and hour, the sun's altitude is found to be 51° 30′ 23″, and his azimuth south 22° 16′ 22″ towards the east. Let A B C (fig. 1.) be a right-angled triangle, having its angle C = the sun's altitude, and A B = 20 yards the height of the tree; thence will A C the length of the shadow on a horizontal plane be found = 15.89117. Let B C be continued to D, meeting A E D, which is the plane of the declivity, and let C E be drawn perp. to the horizontal line A C. In fig. 2, let A be the bottom of the tree, and A *c* N a horizontal plane passing through that point: then A N, being the meridian line, and the angle *c* A N = 22° 16′ 22″, the azimuth, A *c* will be the direction of the shadow, and = 15·89117, as above found; whence N *c* is found = 6·03457. Again, in the triangle *c e* N, right-angled at *c*, having given N *c*, and the angle *c* N *e* = 20° the inclination of the declivity, *c e* is found = 2·196404, answering to CE in fig. 1. The angle C A E may be now found = 7° 51′ 44″; whence D = 43° 38′ 39″; and A D the length of the shadow is easily found = 18·036733 yards.

The same, by Mr Tho. Coultherd, Frosterly.

The day of the month, the latitude and meridian distance being given, the sun's azimuth from the south is found 26° 16′ 44″, and altitude 51° 26′ 30″; to which if there be added 16′ the semidiameter, and 45″ the refraction, the sum 51° 43′ 15″ will be the altitude of his upper limb. Now, in the figure, let B be the place of the tree, A B the edge of the horizontal plane on which it stands, A B D O the continuation of the same plane; C D at right angles with it, B D the direction of the shadow, A D an east and west line, the angle A D B the sun's distance from the east, and angle B D O his altitude. Then, as tang. ∠ B D O : radius ∷ height of the tree : B D = 15·783; and as radius : B D ∷ cosine ∠ A D B : A D = 6·2376; also as cosine C A D : A D ∷ sine C A D : C D = 2·2703, and as D B : radius ∷ C D : tang. C B D = 8° 11′ 8″: Hence, in the triangle E B D, having the angle B last found, the angle E D B the supplement of O D B, conseq. the angle E is known; then as sine E : D B ∷ sine E D B : E B = 17·987 yards, the length of the shadow required.

This question was also answered by Messrs. Adams, Baylis, Campbell, Cowen, Craggs, Crofs, Dino, Dover, Eaton, Furnafs, Garfide, Gee, Hartley, Hawkes, Henry, Hewitt, Hornby, Hunter, Marrat, Milner, Moulfdale, Penglafe, Perrell, Ramfay, Rees, Rullier, Rowe, Ryley, Smith, Squire, Surtees, Thoubren, Towan, Truman, Virgo, Wallace, Wright, &c.

XIII. QUESTION

XIII. QUESTION (1041), *answered by Mr. J. Gough, Kendal.*

The denfity of the air is as its fpring, which in the open tube is equal to a column of mercury of the fame bafe and $29\frac{1}{2}$ inches high; but in the immerfed tube this weight is increafed by a column of water $30 - x$ inches high, x denoting the height of the water in the tube; but $13600 : 1000 :: 30 - x : 2 \cdot 205 - \cdot 0735 x =$ a column of mercury of the fame weight; and the whole preffure $= 29 \cdot 5 + 2 \cdot 205 - \cdot 0735 x = 31 \cdot 705 - \cdot 0735 x$; but when the matter is given, the magnitude is inverfly as the denfity, or preffure in the prefent cafe, therefore $31 \cdot 705 - \cdot 0735 x : 29 \cdot 5 :: 36 : 36 - x$; hence $x^2 - 467 \cdot 36 x = - 1080$, and $x = 2 \cdot 33$ inches, as required.

The fame, by Mr Tho. Hornby, Land-Surveyor.

At pa. 137 of Dr. Hutton's Conics, the fpecific gravity of quickfilver, to that of water, is ftated as 14 to 1. And fince the heights retained above the level by the preffure of the atmofphere, are as their denfities, we have by proportion $1 : 14 :: 29 \cdot 5 : 413$ inches $= 34 \cdot 416$ feet, the height at which water will ftand when quickfilver ftands at $29 \cdot 5$. Therefore, to find what height water will rife in a tube 36 inches or 3 feet long, when funk perpendicularly 30 inches or $2\frac{1}{2}$ feet in water. Let $x =$ the fpace occupied by water; then, will $3 - x =$ the fpace occupied by air. But by the rule at pa. 390, vol. i, Hutton's Dictionary, under the article Diving Bell, the fpace occupied by air, is to the fpace filled with water, as $34 \cdot 416$ feet, is to the depth of the furface of the water in the tube, below the common furface of it. That is, $34 \cdot 416 : 2 \cdot 5 - x :: 3 - x : x$; confeq. $34 \cdot 416 x = 7 \cdot 5 - 5 \cdot 5 x + x^2$; hence x is found $= \cdot 1887875$ feet $= 2 \cdot 26545$ inches, the fame as that in Hutton's Conics.

The fame, by Mifs Maria Middleton, Eden, near Durham.

Let $l = 30$ inches the length of the tube, $b = 30$ inches the part immerfed, $x =$ height of water in the tube, and $f = 413$ inches, the height of a column of water equal to the preffure of the atmofphere, when the quickfilver ftands at $29\frac{1}{2}$ inches. Then, fince the fpaces occupied by the fame quantity of air, are reciprocally as the compreffing forces, it will be, as $l - x : l :: f : \dfrac{l f}{l - x} =$ force of the air in $l - x$; hence $\dfrac{l f}{l - x} + x = b + f$, and $x = 2 \cdot 2654115$ inches.

Ingenious anfwers were alfo given by Meffrs. Adams, Barrett, Campbell, Coultherd, Cowen, Craggs, Furnafs, Gee, Gompertz, Grace, Hewitt, Milner, Penglafe, Rees, Rowe, Smith, Surtees, Towan, Virgo, Wilfon, Wright, &c.

XIV. QUESTION (1042), *answered by the Rev. J. Furnafs, Heddon on the Wall.*

The numbers given in this queftion do not feem to be rightly propofed; for firft a globe of one foot in diameter, and denfity 10 times that of water, will weigh near three times 112 pounds, or the given weight; and again, a globe that is heavier than water, will never lofe all its velocity, but will continually defcend. It may indeed lofe all its force in the water,

fo

so as to come to move with a uniform velocity, when the velocity has increased so far that the resisting force has become equal to the m tive force urging the body downward. And all these circumstances, with proper data, may be determined by Doctor Hutton's Select Exercises, pa 227, 230, &c. or his Dictionary, vol. 2, p. 361. Thus,

Put $d =$ the diameter of the globe, $N =$ its density, $n = 1\frac{1}{5}$ the density of the air, $s = 30$ feet the height of the eminence, $g = 16\frac{1}{12}$ feet, and $v =$ the velocity of the globe at the surface of the water. Now, to determine v in terms of s, put $b = \dfrac{3n}{8Nd}$, $c = 2.718281828$, and $ab = 2g$; then, by pa. 231, Select Exercises, $v = \sqrt{\dfrac{-2bs}{o - ac}} = 43.82$ nearly, or nearly the same as the velocity freely generated by gravity, and is the velocity with which the globe enters the water.

Now put x for any space moved in the water, and $e = 43.82$, the first velocity, the other letters being as above; then, by prob. 31, pa. 227, the general equation is $bx = \log. \dfrac{e}{v}$, or $x = \dfrac{1}{b} \times \log. \dfrac{e}{v}$, where the space x may be found answering to any given velocity v.

Observations and calculations similar to the above were also made by Messrs. Burdon, Campbell, Cowen, Coultherd, Craggs, Gompertz, Gough, Hewitt, Hornby, Marrat, Middleton, Milner, Rees, Rowe, Ryley, Smith, Surtees, Wallace, Wright, &c.

XV. Or Prize Question (1043), *answered by Amicus.*

Make CA and $Cb =$ the two given sides, and $CS =$ their third proportional; produce CA to Z till $AZ \cdot ZS = \frac{1}{4} Cb^2$, erect AD perp. CA, meeting a semicircle described on the diameter CZ in D; draw CD,

and with the radii Cb, CA describe two circles bBI, KAL; from D draw DB a tangent to bBI in B; draw CB, AB, and ACB is the triangle required.
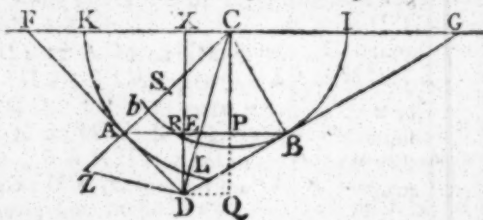
For, drawing through C a parallel to AB, meeting DA, DB produced in F and G, and letting fall the perps. CP, DX; by constr. $\frac{1}{4}CB^2 = AZ \cdot ZS$, and $AC^2 - Cb^2 = AS \cdot AC = AC \cdot ZS - AC \cdot AZ = AC \cdot ZS - AD^2 = DB^2 - AD^2$, $DB^2 = AC \cdot ZS$, $AD^2 = AC \cdot AZ$, $DB^2 \cdot AD^2 = AC^2 \cdot ZS \cdot AZ = \frac{1}{4}AC^2 \cdot CB^2$, or $DB \cdot AD = \frac{1}{2}AC \cdot CB = CD \cdot DR = \frac{1}{2}CD \cdot CP$, therefore $RX = 2DR$. Now, if FDG be a given triangle, and it be required to inscribe another within it such that $AB \times CP^2$ may be a maximum when C is a given point and AB parallel to FG, then since $DX : FG :: R : AB$, the ratio of DR to AB being then given, $DR \cdot RX^2$ is a maximum, therefore by Simpson's Geom. pa. 208, $RX = CP = 2DR$,

and

and when this is a maximum within the tangents DF, DG, it muſt needs be ſuch within the circles KAL, bBI; conſeq. CP^s. AB and the priſm in queſtion is a maximum. Q. E. D.

The ſame, anſwered by Mr John Surtees, Alſton.

Let $x =$ AB the baſe, m and $n =$ the two ſides BC and AC. Then $m^2 (\frac{x^2 + m^2 - n^2}{2x})^2 =$ CE^2, and by the queſt. $\frac{(m^2 - n^2) \times 2x^2 - x^4 - (m^2 - n^2)^2}{x} =$

a maximum, which put into fluxions and reduced, give $x^4 - \frac{2}{3}x^2 \times (m^2 + n^2) = \frac{1}{3} \times (m^2 - n^2)^2$. Hence this conſtruction:

CONSTRUCTION. Take HM $(= 3 \times \overline{m - n})$ perp. to LH $= \sqrt{m^2 + n^2}$, $\angle$BLH $= \angle$LMH, BD parallel and equal to HK $= \frac{1}{3}(m + n)$, KN $=$ KD, and BG $= m - n$; then a mean proportional between BG and BN will be the baſe of the triangle.
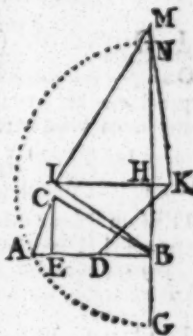
The ſame, by Mr John Craggs, of Hilton.

Suppoſe ACB to be the triangle, AC and BC the given ſides, and take CH : CA :: CB^2 : EA^2, and on the diameters CA and CH deſcribe the ſemicircles CDA and CFH; and conceive the line DEF drawn perp. to CH, and join CF. Becauſe CDA is a right angle, the ſemicircle paſſes through D, therefore CE $\times$ CA $=$ CD^2, and CE $\times$ CH $=$ CF^2, therefore CF^2 : CD^2 :: CH : CA :: CB^2 : CA^2, hence CF : CD :: CB : CA, and becauſe the $\angle$CDF $= \angle$CAB, the triangles are ſimilar, whence CA^2 : CD^2 :: CD $\times$ AB : CE $\times$ DF, therefore CA $\times$ DF $=$ CD $\times$ AB, by mult. by CD we get CA $\times$ CD $\times$ DF $=$ CD^2 $\times$ AB; but CA is a conſtant and given quantity, therefore CD $\times$ DF is a max. Put $x =$ CE, $b =$ CA, $a =$ CH, then $\sqrt{bx - x^2} =$ DE, and $\sqrt{ax - x^2} =$ EF, alſo $\sqrt{bx} =$ CD; conſeq. $\sqrt{bx} \times \sqrt{bx - x^2} + \sqrt{bx} \times \sqrt{ax - x^2}$ or $\sqrt{bx^2 - x^3} + \sqrt{ax^2 - x^3} =$ a max. this in fluxions, and reduced, gives $3x^2 = \overline{a + b} \times 4x - 4ab$, an equation ſimilar to Sanderſon's ſolution to queſt. 800 in the Diary. Hence the conſtruction will be ſimilar, and needleſs to repeat here.
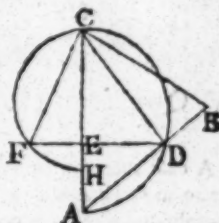
Conſtructions to this queſtion were alſo given by Meſſrs. Campbell, Gompertz, Howard, Nicholſon, and Wallace. Others were attempted, but not right. And ingenious Algebraical Solutions by Meſſrs. Adams, Barrett, Burdon, Carr, Coultherd, Davies, Dowden, Eaton, Ewbank, Facer, Gee, Gough, Hartley, Hawkes, Hewitt, Honey, Hornby, Hunter, London, Mariat, Middleton, Moulſdale, Mulcaſter, Pritty, Rees, Roberts, Rowe, Ryley, Saint, Smith, Thoubren, Turner, Wilſon, &c.

NEW

NEW QUESTIONS.

I. QUESTION (1044), *by Mr Rob. Langdon, of Atlow.*

On a given right line, as a base, to conftruct a triangle fuch, that if a perpendicular be let fall on the bafe from the vertical angle, it may be a mean proportional between the fegments of the bafe; the other two fides being in the ratio of 5 to 4.

II. QUESTION (1045), *by Mr Geo. Boulby, of Ackworth.*

The fum of the vibrations made by three pendulums in one minute is 252, and the ratios of the number of vibrations made by each, as 5, 7, 9; required the lengths of thofe pendulums, fuppofing the length of the feconds pendulum to be $39\frac{1}{8}$ inches.

III. QUESTION (1046), *by Mr Tho. Kirton, Peterborough.*

On April 25th at noon 1798, a ftraight cane of 3 feet long being placed on the horizontal plane, in fuch pofition that its fhadow might be the longeft poffible; and at the fame inftant a perpendicular being let fall from the upper end of the cane was obferved to cut the fhadow at 1·584 feet from the end remoteft from the cane: Query the latitude of the place, it being of the fame name as the declination.

IV. QUESTION (1047), *by Mr Rd. Bennett, Officer of Excife. Afhburn.*

A cafk's length being 40 inches, and content 122 ale gallons, allowing the form to be a middle fruftum of a fpheroid; but if a middle fruftum of a parabolic fpindle, only 100 gallons: query the head and bung diameters.

V. QUESTION (1048), *by Mr Geo. Chapman, Frofterly.*

The entrance into Frofterly fchool meafures $6\frac{1}{4}$ feet by $3\frac{1}{2}$, and is in the front of the houfe, which declines $16\frac{1}{2}$ degrees from the fouth towards the weft; I defire to know how many fquare feet the fun will enlighten on the floor of the fchool, which is perfectly horizontal, on the 21ft of June 1798, at eleven o'clock true time in the morning, fuppofing the rays to meet with no obftruction, but from the outer edge of the entrance, and the bafe of the part enlightened to be in the fame ftraight line with the outfide of the houfe; the latitude of Frofterly being 54° 56'.

VI. QUESTION (1049), *by Mr Tho. Squire, of Aftwick.*

In latitude 36 degrees, the fun was obferved to be due eaft, when the number of degrees from noon was double his altitude. Required the time of obfervation.

VII. QUESTION (1050), *by Mr James Wilding, High-Ercall.*

In the play ground belonging to the fchool at High-Ercall, is a remarkable fine beech tree, whofe branches afford a pleafant fhade in the fummer

season;

season; around which tree I intend making a hexagenal or six-sided seat; for which purpose I have procured a deal plank 16½ feet long and 11 inches broad; I should be glad therefore to know, as a direction to my workman, the inner and the outer lengths of each side, so as to occasion the least loss in cutting.

VIII. QUESTION (1051), by Mr Tho. Hind, at Mr Shepherd's Boarding School, Layton, Essex.

My clock, which ought to beat seconds, gains at the rate of 30 minutes per week; I should therefore be glad to know how many revolutions I must turn the nut of the screw part of the pendulum, downward, to reduce it to keep true time, supposing there be 40 rounds to an inch.

IX. QUESTION (1052), by Mr J. Reffshir, Deptford.

Admitting a right cone to be full of water, standing on a plane; whereabouts in the side must a hole be bored, so that the water may spout just to the circumference or edge of the cone's base; supposing its axis 24 feet, and diameter of its base 20 feet.

X. QUESTION (1053), by Mr Wm. Burden, Acaster Malbis.

Two gentlemen bought a triangular estate, the sides of which are 2160, 3840, and 4750 links, which they have divided between them by a straight fence 1800 links long, drawn through the centre of its inscribed circle, and terminated by the two longest sides of the triangle: Query how much of the estate belongs to each person.

XI. QUESTION (1054), by Mr Tho. Coultherd.

On Lammas Day 1797, at 10 o'clock in the morning, in the latitude of 54° 40′, I observed a boy setting his kite up into the air with a cord of 80 fathom. Now admitting the string when at its full stretch, to make an angle of 60 degrees with the plane of the horizon, the boy's hand to be 4 feet above the same, and the wind to blow from the south-south-west; I desire to know what distance the boy would be from the extremity of the shadow, which the kite would make on the ground when in a vertical position, and its top 3 feet above the cord, allowing the earth to be perfectly level.

XII. QUESTION (1055), by the Rev. Mr Furnass, Heddon-on-the-Wall.

A gentleman has a circular plantation, in which are two walks, the one the chord of an arch of the fence, the other the versed sine or height of the same perpendicular from the middle of the chord, whose lengths are 4 chains and 1 chain respectively. Now the gentleman, wishing to have a ditch made round on the outside of the same, of 6 feet in breadth and 4¾ feet in depth, the inside coinciding with the circumference of the plantation, has two proposals for this undertaking, the one at 2d the solid yard, and the other at 6d per yard running equitable circumference, or along in the middle of the ditch. It is required to shew which is most in favour of the owner;

XIII. QUESTION (1056), *by Mr Wm. Francis, junr.*

A caſt-iron ball, of 4 inches in diameter, is put into a cylindrical copper veſſel, open at top, the veſſel and ball then together weighing 11lb.; but the remainder of the veſſel being then filled up with water, the whole was found to poiſe with 60lb. Now the inſide diameter of the veſſel being double its depth, all its dimenſions may be hence found. Query how?

XIV. QUESTION (1057), *by Mr John Sowerby, of Dudley.*

If a grinding ſtone, 36 inches in diameter, and weighing 5 cwt. make 750 revolutions in one minute; what is the centrifugal force, or tendency it has to burſt:

Dr. Hutton would be glad of the communication of the memoirs of the life of this gentleman's uncle, which ſhall have all due attention paid to them.

N. B. *Dr. Hutton's new Courſe of Mathematics is juſt iſſued from the Preſs. It is compriſed in 2 vols. octavo, and is peculiarly adapted to the uſe of Schools and all ſeminaries of learning. The price of the 2 vols. (it is expected) will be about 16s. bound.*

XV. *or* PRIZE QUESTION (1058), *by Mr John Howard, of Newcaſtle.*

To conſtruct the great circle triangle A V B, having given the vertical angle V, and the difference between each ſide and its adjacent ſegment of the baſe, made by a perp. let fall on it from the vertical angle, viz. AV — AP and BV — BP.

** *The prizes for the ſeveral ſolutions have been determined by Lot as follows: Firſt, for the Prize Queſtion, to Mr J. Howard and Mr J. Surtees, each 10 Diaries. —2d, for the Prize Enigma, to Miſs Eliza Still and Miſs A. T. each 8 Diaries.— 3d, for the General Anſwers to the Enigmas, to Mr W. Butteman and Mr R. Waller, each 8 Diaries. — 4th, for the Rebuſes, Queries, &c. J. Bayley and Wm. Saint, each 6 Diaries: All of whom will pleaſe to ſend ſome perſon in London to call for them, on their account, at Stationers Hall.*

Pieces for the uſe of the Diary, to be directed thus, viz. To the Author of the Ladies Diary, Stationers Hall, London. The letters to be all poſt-paid or franked, otherwiſe they will not be received; and the laſt of them to be ſent, at the lateſt, before the end of April; otherwiſe they cannot be inſerted; but thoſe for the ſolution of the Prize Enigma and Prize queſtion, before Candlemas Day. And along with all new Queſtions, Enigmas, Rebuſes, and Charades, their anſwers muſt be ſent.

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